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THE NEW

AMERICAN CYCLOPÆDIA:

A

Popular Dictionary

OF

GENERAL KNOWLEDGE.

EDITED BY

GEORGE RIPLEY AND CHARLES A. DANA.

VOLUME I.

A-ARAGUAY.

NEW YORK:

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P R E F A C E .

THE work, of which the first volume is now published, is in such an advanced state of preparation for the press, that a brief outline of its purposes and method may be equally appropriate in this place, as on the completion of the series.

It is the design of the *NEW AMERICAN CYCLOPÆDIA* to furnish a condensed exhibition of the present state of human knowledge on the most important subjects of inquiry. The discussion of the controverted points of science, philosophy, religion, or politics, does not enter within the compass of its plan; but it aims exclusively at an accurate and impartial account of the development of opinion in the exercise of thought, of the results of physical research, of the prominent events in the history of the world, of the most significant productions of literature and art, and of the celebrated individuals whose names have become associated with the conspicuous phenomena of their age.

In preparing the materials of the work, neither the Editors nor their collaborators have attempted or desired to make it a vehicle for the expression of personal notions. As far as was consistent with the nature of the case, they have confined themselves to the historical relation of facts, without assuming the functions of advocates or judges. In instances which seemed to demand a positive verdict, they have endeavored to present an illustration of evidence rather than an exhibition of argument. At the same time each subject has been treated in the point of view of those with whom it is a speciality, and not in that of indifferent or hostile observers. In order to secure the most complete

justice, in this respect, the various articles in the work have been intrusted, as far as possible, to writers whose studies, position, opinions, and tastes, were a guarantee of their thorough information, and which furnished a presumption of their fairness and impartiality. Thus, in the different branches of science, the articles have been prepared by men of eminent accomplishments in each of the respective departments; the articles on History, by historical students in special provinces; on Biography, especially of living persons, by those most familiar with the life and character of the subjects; on Military and Naval affairs, by military and naval men; on Technology and Machinery, by practical machinists and engineers; and on the History and Doctrines of the Church, by theologians of the different Christian denominations in the most intimate relations with the topics under treatment.

In a work primarily intended for popular instruction and entertainment, it is obvious that lengthened and exhaustive treatises on the subjects which are brought forward in its pages would be inappropriate; no attempt, accordingly, has been made to furnish the masters of literature and science with new facts or principles in their peculiar branches of study; but, on the contrary, the Editors have aimed at such selections from the universal treasury of knowledge as will place the cultivators of one department of research in possession of the achievements of other departments, and especially to spread before the great mass of intelligent readers a faithful report of the opinions, systems, discoveries, events, actions, and characters that make up the history of the world.

A popular method, however, has not been pursued at the expense of thoroughness of research and exactness of statement in regard to topics which seemed to demand a more elaborate treatment. Ample space has been allotted to articles of this description, especially on subjects connected with modern scientific discoveries, improvements in the practical arts of life, the principles of Physiology and Hygiene, and American History, Biography, and Geography. Still, the condensation and brevity which have been adopted in the treatment of secondary points of interest, have enabled the Editors to introduce a greater variety of titles than is usual in books of similar intent, and thus to enhance the value of the *NEW AMERICAN CYCLOPÆDIA* as a manual of universal reference.

The materials, which have served as a foundation for the work, have been derived from a great variety of sources. The numerous Encyclopædias, Dictionaries of special branches of study, and popular Conversations-Lexicons, in the English, French, and German languages, in which the literature of the last quarter of a century is so singularly rich, have, of course, been

diligently consulted and compared; their contributions to the common stock of knowledge have furnished many valuable facts, statements, and suggestions; recent biographies, histories, books of travel, and scientific treatises, have been put in constant requisition, and their contents carefully digested; while many of the writers employed upon this work have enriched it with the fruit of their personal researches, observations, and discoveries in the branches of science and learning in which their names have attained an honorable distinction.

In the preparation of this volume nearly a hundred writers have taken part, including persons in almost every quarter of the United States, in Great Britain, and on the Continent of Europe. No restriction has been laid on their pens, except that of abstinence from the expression of private dogmatic judgments, and from the introduction of sectarian comments at war with the professed historical character of the work. The great mass of materials thus produced has been critically revised by the Editors, and moulded into as complete unity, both of substance and form, as was, perhaps, either possible or desirable, with such a wide diversity in the original sources. In this fact, it is hoped, will be found a guarantee of the universality and impartiality of the work, impressing upon it a disinterested character, no less by the necessity of the case than by the good faith of individual professions.

Without a more extended enumeration of authorities, the Editors acknowledge their special obligation to the *Nouvelle Biographie Générale*, published by M. DIDOT (Paris, 1855-'57), for facts in recent French biography; to the "English Cyclopædia," edited by Mr. CHARLES KNIGHT (London, 1854-'57), whose well-digested summaries, in some instances, have been drawn upon for useful information; and to PIERRE's *Universal Lexikon* (Altenburg, 1849-'54, 1857), whose minute and accurate details have furnished essential aid in the verification of uncertain dates and controverted facts and events.

The Editors of this work are unwilling that the first volume should pass from their hands without an expression of their obligations to the corps of contributors and the numerous men of eminence in science and literature, whose effective co-operation has lightened their own labors and laid the foundation for the utility and value of the publication. They would also express their gratitude for the liberality with which their collaborators have been permitted to use the Astor Library, the Mercantile, Society, and Historical Libraries in this city; the Library of the Athenæum, and of the American Academy of Arts and Sciences, in Boston; and the Library of Harvard College, in Cambridge.

The volume, now presented to the public, may be regarded as an earnest of the literary and typographical execution of the whole work. It will be completed mainly by the same writers whose contributions are contained in this volume (and whose names will be hereafter announced), and will be made to pass as rapidly through the press as is consistent with mechanical accuracy.

NEW YORK, *December 1st*, 1857.

THE NEW AMERICAN CYCLOPÆDIA.

A

A, the first letter in the alphabets of all written languages, if we except the Ethiopic or Abyssinian, of which it is the thirteenth. The rank it holds so universally has been supposed to indicate either a common origin of written language, or a claim in the letter itself to precedence, founded on some natural law; but it is now held by eminent philologists that this letter has no special claims to being placed at the head of the alphabet. **A** is a vowel, or, rather, it is the representative of vowel sounds, or vocal elements of language. Originally, it was probably the symbol of one single sound only, but in English it represents at least seven distinct simple sounds of the voice. These seven distinct sounds are heard in the words *mate*, *mat*, *mare*, *mart*, *ball*, *many*, *what*. Other distinct sounds are denoted by this letter when used in proper names, a remarkable instance of which is the famous street in London, spelled *Pall Mall*, which is pronounced *Pell Mell*. The letter **a** is also frequently coupled with other letters to represent the same simple elementary sounds that it does when standing alone, as in the words *maid*, *pear*, *jaunt*, *fault*, *straight*. It is often found united with other letters also when it represents no sound at all, or has, in fact, lost its vocal value entirely, as in the words *boat*, *best*, *beauty*. In proper names the use of **a** in combination with other vowel letters is sometimes quite ludicrous, as in the distinguished English name spelt *Beauchamp*, and pronounced *Beckam*. The primary sound of the letter **a** (as in *mate*) is also represented in thirty-three different ways, by combinations of nine other letters. These various uses of this letter, together with other similar incongruities, tend to render the acquisition of the English language very difficult to foreigners. The historical features of the letter **a** are interesting. The sound of this letter was disliked by Cicero, (probably that sound of it which we now have in *mart*,) and in the treatise *De Oratore*, C. xlix., he terms it *insuavisima littera*; doubtless from the expiration necessary to produce the sound, although, on the same principle, the other vowels should have equally shared his displeasure. By the ancients **A** was employed

AA

as a numeral, and stood for five hundred, and when a dash was placed on the top, thus, \overline{A} , for ten times that number, or five thousand. It is the first of the seven Dominical letters in the Julian calendar—an imitation of the *Litteræ Nundinales*, which had been in use among the Romans long before the introduction of Christianity. In logic, the letter **A** denotes a universal affirmative. In the *comitia* of the Romans, the letter **A** was used in giving suffrages; so, also, in criminal trials it represented *Absoleo*, I acquit; hence Cicero, in his speech for Milo, terms it *littera salutaris*. In ancient inscriptions, **A** stands for *Augustus*, *Augustalis*, *ager*, *agit*, *aiunt*, *aliquando*, *antique*, *assoleit*, *aut*; **A A** for *Augusti*, *Augustæ*, *Aulus Agorius*, *aes alienum*, *ante audita*, *apud agrum*, *aurum argentum*; **A A A** for *Augusti*, when three in number, and *aurum*, *argentum*, *as*. When found on the reverse of ancient medals it indicates the city in which they were issued, as *Argos* or *Athens*; on modern coins it is the mark of the city of Paris, doubtless taken anagrammatically, from the last letter of the word *Lutetia*. **A** is also a frequent abbreviation, as **A. D.** for *Anno Domini*, **A. M.** for *Artium Magister*, *Anno Mundi*, &c. In medical prescriptions it is used thus, \overline{A} , for *ana*, of each. In bills of exchange it is in England an abbreviation for *accepted*, and in France of *accepté*. It is likewise customary with merchants to mark their books with the letters **A. B. C.**, instead of the ordinary numerals. **A A A** is the chemical abbreviation for *amalgama*.—**A**, in music, is the nominal of the sixth diatonic interval of the first octave of the modern scale. It corresponds with the **La** of Guido. **A** was the lowest note of the ancient Greek scale, and for many centuries represented the deepest tone used in music. Alterations in the scale were made, however, in the tenth century by Guido, and subsequently by others, so that at present **C** is the first note of the natural scale, and **A** the sixth diatonic interval—**a** marks the same interval in the second octave. From this letter almost all instruments are tuned. **A** is also the nominal of one of the two natural modes.

AA, the name of a family originating at a

remote period, and met with frequently in the chronicles of Holland. Those of its members who succeeded in achieving any degree of posthumous fame, were remarkable as scholars and laborious workers, rather than as thinkers or originators. I. CHRISTIAN CHARLES HENRY, Lutheran pastor, born at Zwolle, 1718, died in Harlem, 1798. He was eminent as a theologian, and, also, as a man of great scientific knowledge. II. HILDEBRAND VAN DER, was the younger brother of the bookseller Peter, and a native of Leyden. Peter employed him to illustrate his works. III. PETER VAN DER, a bookseller of Leyden, the precise date of his birth unknown, died 1780. His principal works were *La Galerie Agréable du Monde*, in sixty-six volumes, fol., with an atlas of two hundred charts, and "Voyages and Travels relating to the East and West Indies." He made a continuation of Grævius's Thesaurus of Italian writers, and also published several works on the antiquities of Greece, Rome, &c., none of which, however, created any lasting impression. IV. PETER VAN DER, an eminent jurist, born in Louvain, 1585, died at Luxembourg, 1594. He left a few valuable works on jurisprudence.

AA, the name of about forty small rivers in Central and Northern Europe, derived from the Celtic *Ach*, or Teutonic *Aa*, flowing water. Among the most important of them are the following: I. A river of Holland in North Brabant, which, passing Halmond, joins the Dommel at Bois-le-Duc. II. A river in Groningen, called Westerwolden Aa, which falls into the Dollart. III. A river in Overijssel, which, after uniting its waters with the Veeht, flows into the Zuyder Zee. IV. A river of Belgium, in the province of Antwerp, which empties into the Neetha. V. A small river of Brabant, near Breda. VI. A river in the Russian province of Livonia, which flows into the bay of Riga. VII. A river in Courland, which flows into the Dwina, near Riga. VIII. A river of France, rising in the department of Le Nord, becoming navigable for barges at St. Omer, and after a course of about forty miles, falling into the sea at Gravelines. IX. A river of Hanover, flowing into the Ems in the province of Lingen. X. A river in the canton of Aargau, Switzerland, carrying the waters of the Lake of Hallwyl into the Aar. XI. A river of Switzerland, bearing the waters of the Lake of Sarnen into the Lake of Lucerne. XII. A river draining the valley of Engelberg, Switzerland, and flowing into the Lake of Lucerne.

AAGAARD, CHRISTIAN, a modern Latin poet, distinguished by the elegance and freedom of his style, born at Viborg, in Denmark, Jan. 27, 1616, died Feb. 5, 1664. He graduated at Copenhagen in 1635, was appointed professor of poetry in the university of that city in 1647, and rector of the school at Ribe in 1651. His chief productions were a long poem, in honor of a naval victory achieved by Christian IV., entitled *Laurus Cimbrica*, (Hafniae, 1644, fol.) and

Threni Hyperborei (Hafniae, 1648, fol.). These, with his other poetical works, and a life by his son, were printed in the first volume of Rostgaard's *Deliciae Poetarum Danorum* (Lugduni Batavorum, 1698).—His brother, NIELS AAGAARD (1612—1657), professor of elocution at the academy of Sorø, wrote several critical works in Latin, which are little known out of Denmark.

AAGESEN, SVEND (in Latin, *Sueno Agonis*), the earliest Danish historian, flourished at the end of the twelfth and commencement of the following century. At the command of the celebrated Axel or Absalon, archbishop of Lund, he wrote a compendious history of Denmark down to the year 1187. His Latin style is full of barbarisms, but the work is of great importance to the northern historical student. This, with a shorter work by the same author, was edited by S. J. Stephanus, under the title of *Suenonis Agonis filii Opuscula* (Sorøe, 1642, 8vo).

AAIN EL GINOON, an ancient city in Fez. The name signifies "spring of the licentious." It was situated near a spring and contained an ancient temple, probably dedicated to Ashtarothe, the Phœnician Venus. The worshippers assembled at night, and after the sacrifices the lights were extinguished and a scene of debauchery ensued. The children born of this promiscuous intercourse were brought up by the priests. The Mohammedan invaders destroyed the town and temple.

AAL, JACOB, metallurgist, born 1773, at Porsgrund in southern Norway, died August 4, 1844, was educated at the high school in Nyborg, Denmark, and the university of Copenhagen. Originally intended for the church, his strong taste for natural sciences, especially mineralogy and metallurgy, absorbed him in those pursuits. He studied in Germany and Switzerland, and on his return to his own country, bought some iron works at Arendal, a little seaport on the southern coast. The continental war (1792—1815) almost ruined his establishment. In his hours of leisure he devoted himself to a study of the antiquities, dialects, and local histories of his native land. He became a member of the Storting in 1814, and sat there till 1830, when he withdrew from public life. He subsequently published a politico-economical work, *Nutid og Fortid*, (Present and Past).

AALBORG, a seaport and city of Denmark, province of Jutland, situated on the south shore of the Lymfjord, near its outlet in the Cattegat, in latitude 57° 2' 46" N. longitude 9° 55' 38" E. It has a population of 7,500, a school of navigation, manufactories, and a large herring fishery. Direct communication is had by steam and packet boats with Copenhagen; seventy-four vessels belong to the port.

AALÉN, a bailiwick in the circle of Jaxt, in the kingdom of Wurtemberg, Germany. Its extent is one hundred and eight square miles, with 21,847 inhabitants. Its

manufacturing industry consists of several iron works, forges, cast-iron factories, paper mills, whetstone quarries, wooden ware shops, and woollen and leathern factories. It contains, beside its capital, 190 smaller towns and villages.

AALST, EVERARD, a Dutch painter, born at Delft, 1602, died in 1658. His paintings are now much valued by collectors.

AAR, the most considerable river in Switzerland after the Rhine and the Rhone. It rises in the glaciers of the mountains in Berne, forms a magnificent waterfall at Haali above 150 feet in height, and empties itself into the Rhine opposite Waldshut, after a course of about 170 miles. There are several small rivers of this name in Germany.

AARD-VARK (*orycteropus Capensis*), an animal of the class *mammalia*, order *edentata*, peculiar to Africa, and extremely common in the southern part of that country, especially in the Cape Colony, where it is called *aard-vark* or earth pig. It was formerly classed with the *myrmecophaga*, or ant-eaters, from which it has been more recently distinguished. It is more closely allied in anatomical structure and in its dental system to the armadillos than to any other class of animals, although it has not their defensive armor. It has neither incisors nor canine teeth, and its molars are different in structure from those of any other quadruped; they have no roots, and, like the tusks of the elephant and the incisors of the gnawing animals, are constantly increased by the deposit of new bony matter at the base to compensate for the continual wear at the extremity. The aard-vark is plantigrade, treading on the whole sole of the foot, like the bear; not digitigrade, or going on the toes only, like the dog, horse, and fleet-footed quadrupeds. It has large, flat feet, hollow on the under side, with powerful claws, the toes, four in front and five behind, gradually diminishing outward from the interior and second—corresponding to the fore and index fingers of the human hand; this structure giving it great facilities for digging the burrows in which it lives, and for excavating the hills of the great ants, on which it feeds exclusively, as do the *pangolins* of Asia, the *myrmecophaga* of America, and the *echidna* of Australia. At first sight, the aard-vark resembles a small, short-legged pig. Its length, when full-grown, exclusive of the tail, is about three feet five inches, its head eleven inches, its ears six inches, and its tail one foot nine inches. Its head is long and attenuated, its upper jaw projecting beyond the lower; its mouth small, its tongue long, slender, and flat, unlike the cylindrical organ of the *myrmecophaga*, nor capable of so great protrusion, but, like theirs, covered with glutinous saliva, which firmly retains the ants with which it comes in contact. Its ears are long, erect, and pointed; its eyes of moderate size, two-thirds nearer to the brow than to the snout. Its body is thick and corpulent, its limbs short and very strong. Its skin is generally bare, but thinly scattered with a few stiff,

reddish-brown hairs, which are more numerous on the hips and thighs than on the other parts of the body. The tail is nearly naked, very thick at the base, but tapering to a sharp point at the end. The aard-vark is a very timid, inoffensive animal, burrowing in the ground, if pursued, so rapidly as to get wholly out of sight in the space of a few minutes, and working inward with such power and quickness, that it is impracticable to dig him out. It is nocturnal in its habits, and in its hours of feeding, and like almost all such animals, passes most of its time between eating and sleeping, and becomes exceedingly fat. Its flesh is wholesome and nutritive, and its hams, salted and dried, are good eating.

AARD-WOLF, or earth wolf (*proteles Landii*, *viverra cristata*), a singular quadruped, of the digitigrade, carnivorous *mammalia*, first brought from Caffaria by the traveller Delalande. It is a genus very interesting to the zoologist, as it forms a connecting link between the dogs, civets, and hyenas, three genera, which have hitherto stood wholly insulated from the surrounding groups, and widely separated from one another. To the external appearance and osteological structure of the hyena it unites the head and feet of the fox, and the intestines of the civet. It has five toes on the fore feet, the interior one of which is situated high above the others and does not touch the ground, and but four behind. Its fore legs are much longer than the hind ones, which makes it comparatively slow in its motions, and gives it a strong resemblance to the hyena. In size it is about equal to a full-grown fox, which it also resembles in its pointed muzzle; but it stands much higher on its legs, while its ears are larger and more naked, and its tail shorter and not so bushy. In color and general appearance it is closely similar to a young hyena, from which it is scarcely distinguishable, except by its fifth toe on the fore feet, and its pointed muzzle, nearly resembling it in the colors and markings of its fur, and in the coarse, stiff mane which runs along the whole of its neck and back, and is erectile when the animal is enraged. The general color of the aard-wolf is pale ash-colored, with a slight tinge of yellowish brown; the muzzle is black, and nearly naked, with the exception of a few stiff moustaches. Around its eyes, and on each side of the neck, are dark brown transverse marks, and on the body are eight or ten similar transverse bands, the arms and thighs being similarly barred with the same color. Its legs and feet are dark brown behind, and gray on the inner surface. The long hairs of the mane are gray, with two bands of black, the latter occupying the tips; those of the tail, which are equally stiff, are of the same color, this arrangement of the colors of the several hairs giving both mane and tail the appearance of being alternately clouded with black and gray. The ears are brown without, and gray internally. In its habits the aard-wolf resembles the fox, constructing subterranean bur-

rows, in which it sleeps during the day, going abroad and feeding only by night. It is timid, inoffensive, and shy in its habits, but fond of the society of its own species, many individuals being ordinarily found residents of the same burrow, which has always several apertures, in order to allow of the inmates' escape, if attacked, in various directions. It is said to run very fast, in spite of the excessive length of its fore legs, which should indicate a slow, not a rapid animal; and if in danger of being overtaken, it has been observed to cease from its flight, and to scratch with its fore legs, as if desiring to make a new burrow.

AARGAU, a Swiss canton, bounded by Zurich, Zug, Lucerne, Bern, Soleure, Basel, and the Rhine, which separates it from Baden. Its area is 508 square miles, and its population in 1850 numbered 199,720, of which 107,194 were Protestants, 91,096 Roman Catholics, and about 1,500 Jews. The country is diversified by hills, mountains, and valleys, the soil well cultivated, and extensive vineyards abound. It is watered by the rivers Aar, Renas, and Limmat, the two latter being navigable. Cottons, silks and linens, woven by hand, are the principal manufactures, and with straw hats, cheese, corn, wine, and cattle, form the chief exports. The canton is divided into eight districts, each of which has a secondary school. Its capital is Aarau.

AARHUUS, a Danish seaport in North Jutland, on the Cattegat, at the mouth of the Molle-Aue, between the sea and a small lake, which at its outlet forms a port. It is 37 miles south-east of Viborg, in lat. $56^{\circ} 8' 27''$ N. long. $10^{\circ} 12' 48''$ E. The population numbers 8,000, and the town contains a cathedral, lyceum, library, and museum. Various manufactures are carried on, and a regular steam communication exists with Copenhagen; 49 vessels belong to the port.

AARON. I. Son of Amram, of the tribe of Levi, elder brother of Moses, and divinely appointed to be his spokesman in the embassy to the court of Pharaoh. By the same authority, avouched in the budding of his rod, he was chosen the first high priest. He was recreant to his trust in the absence of Moses upon the mount, and made the golden calf for the people to worship. He died on Mount Hor in the 127th year of his age, and his office descended to Eleazar, his son. II. A priest and physician of Alexandria, Egypt, who lived in the seventh and eighth centuries after Christ. He wrote 80 books on medicine in Syriac, which he called *Pandecta*. He is the first author who mentions the small-pox and measles. He says they were introduced into Egypt by the Arabian conquerors, about 640 A. D. III. **AARON, ISAAC**, of Jewish origin, lived towards the end of the twelfth century. He was the interpreter of the Byzantine emperor, Michael Comnenus, for the languages of Latin Europe. After Andronicus Comnenus had usurped the throne of Michael, Aaron advised the former to add to the usual mode of punishing one's enemies, which was to

put out their eyes, that of cutting off their tongues. This advice was shortly afterwards put into practice upon its author by the successor of Andronicus. IV. **AARON AL RASHID**, Caliph. See **HABOURN**.

AARSOHOT, **PHILIPPE DE CROI**, duke of, a prominent Belgian, died at Venice in 1595. He represented Philip II. of Spain at the diet of Frankfort in 1563, which had been convoked for the election of an emperor. He joined the league headed by the Prince of Orange against the Spanish government. Disgusted by the intolerant spirit and cruelty of the Spanish generals, he withdrew to Venice, to die in peace, as he said.

AARSENS, **CORNELIUS VAN**, lord of Spyck, a Dutch statesman, born at Antwerp in 1548, died in 1634. He was recorder of the States General for forty years. — **FRANÇOIS VAN**, diplomatist, son of Cornelius, born at the Hague in 1572, died 1641. The part which he took in the condemnation of Barnevelt was highly blameworthy. In 1599 he was nominated to the post of ambassador at the French court, and concluded (1609) the truce of twelve years between the United Provinces and Spain, under the guarantee of France. He was highly esteemed at the court of Louis XIII., and Cardinal Richelieu said concerning Aarsens, that he had known only three great statesmen in his time, Oxenstiern, chancellor of Sweden, Viscardi, chancellor of Montferrat, and Francis van Aarsens. He was also employed by the republic of Holland in England. It was he who negotiated the marriage between William Prince of Orange and the daughter of Charles I.

AB, the eleventh month of the Jewish civil year, and fifth of the ecclesiastical. The Jews have three fasts in this month; on the first day to commemorate the death of Aaron; on the ninth to commemorate the burning both of the first and second temples; and on the eighteenth to commemorate the going out of the sanctuary lamp, in the reign of Ahaz.—**Ab** is the twelfth month of the Syrian year.

ABA, **SAMUEL**, the third Christian king of Hungary. He ascended the throne in 1040, and soon after becoming engaged in war with Henry III., lost his life after the battle of the Raab, July 4, 1044.

ABABDE, a village of Middle Egypt, eight miles south of Beni Hassan, on the right bank of the Nile, in lat. $25^{\circ} 48'$ N. lon. $30^{\circ} 57'$ E. The ruins of ancient *Antino*, or *Antinoëpolis*, a city built by the emperor Hadrian, and named from Antinous, his favorite, who was drowned in the Nile, are near by. The African tribes, of the same name, who live hereabouts, boast of Bedouin descent, and are a very faithless, thieving people.

ABACK, a sea term. The sails of a ship are said to be taken aback when by the force of the wind they are made to press against the masts. This may happen when the wind changes suddenly, or when the ship alters her course.

The sails are laid aback to avoid a danger in front. The sails, when in this position, force the ship astern or in a backward course.

ABACO, a long and crooked island, the largest of the Bahama group, near the Florida coast, 80 miles long, by an average of 15 wide. Its N. point is in lat. 26° 30' N. lon. 76° 57' W. Population 1,900 (Little Abaca adjoining included). Many of the inhabitants are white creoles. They occupy four settlements, and work at shipbuilding, turtling, and wrecking. The sailors' landmark, "Hole in the Wall," is a perforation in the rock on the S. E. point.

ABACOT, the name of an antique cap of state worn by the kings of England, the upper part of which was in the form of a double crown.

ABACUS. I. In architecture, the abacus signifies the upper part of the capital of a column, and is said to have been designed from a square tile laid over a basket. In different orders the shape of the abacus is different. II. Among the ancients, a cupboard. III. The mystic staff carried by the grand master of the Templars. Its head was of silver, marked with the peculiar cross of the order, but it bore another secret device, concealed or disguised, and revealed only to the initiated, of portentous and obscene import, being no other than the orthophallic symbol of heathen antiquity, indicating the worship of the generative power, as distinct from the creative attribute of God. IV. A calculating machine to facilitate arithmetical computations. It is sometimes, but seldom, used in America to teach the multiplication table to children. It is then in the form of a slate, with twelve wires running through it, and on each wire twelve beads. In China it is much employed. The Chinese call it *Shwanpan*. A man who uses the *Shwanpan* can tell the amount of a column of figures the moment they are read off to him. The Greeks and Romans made use of the abacus in their mercantile transactions, and it is still found in Russian shops and counting houses.

ABAD I, first Moorish king of Seville, died Jan. 1042. His father Ismael ben Abad came from Emesa in Syria. Having gained the confidence of the king of Cordova, he procured for himself the office of chief *cadi* of Seville, and by his intrigues and the support of the sheiks and viziers during the dissensions of the kingdom of Cordova, he was enabled to render himself independent, A. D. 1023. On the massacre of the Ommyiades, he assumed the supreme title of king, and to give force to his pretensions, he proclaimed himself the legatee of Hashim al *Mowaiad*, the last of the Ommyiades, and by this means secured the affection and allegiance of his new subjects, who clung to the memory of their old sovereigns.—He was succeeded by his son, **ABAD II**, born A. D. 1012, died April 1069. He assumed the wars left unfinished by his father. He overcame the king of Carmona, whose territory he added to that of Seville, and gradually acquired the whole of Andalusia. He was a sanguinary and ambitious

prince, in proof of which it is said that he had several cups made of the skulls of his enemies, ornamented with precious stones. At his death he left parting directions to his son always to distrust the Almoravides, and to make the subjugation of the Peninsula under one crown the object of his constant aims.—**ABAD III**, son of the preceding, born A. D. 1089, died A. D. 1095. He also had the surnames of Al *Motamed*, Al *Giaffar*, and Al *Mowaiad*, from which he is occasionally confounded with other princes of the same name. He was an eminent patron of arts and letters, and had the happy gift of conciliating even his enemies. In the year 1079, he subdued Cordova and united that kingdom and the kingdom of Malaga to his own, thus partly fulfilling the testamentary advice of his father. Alfonso of Castile having, however, invaded the Moorish dominions, laid siege to Saragossa. A conclave of moollahs was held at Cordova, in 1085, and a holy war proclaimed against the Christians. Yussuf ben Tashfyn, emperor of Morocco, was invited to aid the believers, which he did, and a desperate engagement took place in the plains of Zalleka, between Badajoz and Merida, in which the Christians were entirely defeated, and Alfonso escaped to Toledo with only a few followers. The powerful ally whose assistance they had invoked was, however, more dangerous than the Christian foes; he laid siege to Toledo, but precipitately abandoning the plans of the confederacy, turned his arms upon the Moors; he speedily conquered the kingdom of Granada, and summoned Abad to recognize his supremacy, which he refused to do, and sent ambassadors to Alfonso, to seek aid, which that prince promptly afforded. Sheer ben Abu Bekr, the lieutenant of Yussuf, defeated the Andalusians and Christians, and Abad and his family were sent to Morocco as captives, and were kept in close confinement, and in such indigence that king Abad's daughters were compelled to spin wool for their own and their father's subsistence. In these reverses he sought consolation in poetry, in which he depicted his calamities. The Abadite dynasty terminated with him.

ABAD Y QUEYPEO, Spanish bishop, born 1775. He was made an ecclesiastical judge in Mexico, and in 1809 became bishop of Michoacan. He took an active part in the revolutionary movements in Mexico on the liberal side. On the restoration of Ferdinand VII. he was deprived of his bishopric, and sent prisoner to Spain. The inquisition commenced a process against him, but he found means of escaping and obtaining an interview with the king, who pardoned him and appointed him minister of justice. The grand inquisitor would not, however, lose his victim, and had the minister arrested. The revolution of 1820 set him at liberty again, and he was made a member of the provisional government. On the revolution in 1829, he was a third time arrested and sentenced to six years' imprisonment.

ABADIOTES, the name of a Mohammedan

settlement of pirates, situated upon the island of Candia, south of Mount Ida, consisting of a population of about 7,000 souls scattered over twenty villages. They are a branch of the Saracens whom Nicephorus Phocas expelled from Candia in the tenth century. They are a smaller and weaker race than the other inhabitants, and speak the Arabian language.

ABADDON. *Ab* or *ob*, evil, *Adon*, ruler. Some writers give it as from a Hebrew word signifying "destroyer." The word is used in every instance but one in the Scriptures as "a place of destruction." In the instance referred to, Rev. ix. 11, there is a personification, and Abaddon is the designation of the king of the locusts, the angel of the bottomless pit. In this passage his name is also given in the Greek as *Apollyon*, the only place where the word *Apollyon* occurs, and signifies "destroyer."

ABAFI, a nautical term. Aft is the opposite of afore, and is an adverb signifying the stern or hindmost part of the ship; thus, an officer orders one of the crew to go aft. Aft is also used as a preposition; thus it is said, the barricade stands aft the mainmast, that is to say, behind it or nearer the stern.

ABAKA KHAN, second Mongol emperor of Persia, of the race of Genghis Khan, succeeded his father, Hulaku Khan, 1265. He sent ambassadors to Lyons, 1274. He completed the conquest of Persia, and restored Bagdad. He consolidated the Mongol empire over nearly the whole of Western Asia. He died 1282, at Hamadan, of poison, and was succeeded by his brother Ahmed Khan.

ABAKANSK, a fortified town of Siberia, government of Tomsk, on the Abakan, near its junction with the Yenisei, in lat. 54° N., lon. 91° 30' E. The climate is comparatively mild and salubrious. In the vicinity of the town are tumuli, containing gold and silver ornaments, and upon which are colossal statues of men with carved work of a remarkable character.

ABANA, mentioned in Scripture in connection with Pharpar, as a river of Damascus. Much doubt exists as to what stream is meant. The principal river of Damascus, now known as Barrada, is supposed to be Pharpar, and probably its principal tributary was the scriptural Abana. Some writers consider Pharpar to be the Awaj, in which case Barrada may be Abana. Others still consider Abana and Pharpar to be the same.

ABANCAY, a town of Peru, capital of the province of the same name, and on the river Abancay. It is situated 65 miles W. S. W. of Cuzco, has a population estimated at 5,000, and contains several sugar refineries.

ABANCOURT, CHARLES XAVIER JOSEPH *de*, minister of Louis XVI. of France, born at Douay, July 4, 1758, died Sept. 9, 1792. At the commencement of the revolution he was captain in the cavalry, but was made minister of war on account of his services in the occur-

rences of June 20, 1792. During the proceedings of the 10th of August he was accused of being a foe to freedom, and was imprisoned. With many others he was dragged before the tribunal at Orleans, whence he was to be reconducted to Paris. But the transport was mobbed on the way, at Versailles, and Abancourt and his fellow-prisoners were barbarously butchered. — CHARLES FREBET *d'*, a celebrated French engineer, born in Paris about the middle of the eighteenth century, died in Munich 1801. He resided a long time in Turkey, in the service of the French government. At the commencement of the French revolution he returned to France, bringing with him a valuable collection of plans and maps. He was elected member of the Assembly, and was afterwards placed at the head of the topographical department of the Danubian army. Many of the maps constructed by him at that time are still very highly prized.

ABANDONMENT, in law, is the giving up or abandoning all claims to goods or property insured, which the owner must do before he can recover for a total loss from the insurer.

ABANO, town in Italy, district of Padua, celebrated for a thermal spring, valuable for scrofulous complaints. Heat about 185° Fahr. Livy was born at Abano, and the waters were known to the Romans.

ABANO, PIETRO *di*, an Italian philosopher, born 1250, died 1316. He was a man of extensive acquirements, studied at Paris, and practised medicine at Bologna. He wrote several works on philosophy and medicine. In common with the scientific spirits of his age, he practised astrology, and was accused of magic, and sentenced to be burnt, but died in prison.

ABANTES, a warlike tribe of ancient Greece, settled in Phocia, and whose chief town was named Aba.

ABARBANEL, ISAAK BARBANELLA, one of the most learned of the Spanish Jews. He was born at Lisbon in 1487, died at Venice in 1508. He gained the favor of Alfonso V. of Portugal; but the successor of that monarch, John II., stripped the learned Jew of all his offices, and he fled into Spain, where he was well received by Ferdinand and Isabella. He was employed by them in financial matters; but even their favor was insufficient to protect him against the intolerance of the Inquisition. Upon the promulgation of the edicts against Jews he was compelled to expatriate himself, with his unhappy people. He took refuge in Naples; but on the usurpation of that kingdom by Charles d'Anjou, he retired to Sicily with Alfonso, to whom he adhered in his misfortunes. On the death of this prince he retired to Corfu, and at last to Venice. He rendered important services to the Venetians by arranging satisfactorily their disputes with the Portuguese as to the trade in spices and other eastern productions. He is in high esteem among the Jews. His rabbinical writings, expositions

of the text of Ezekiel, and commentaries on the Old Testament, are works of authority.

ABARCA, JOAQUIN, a Spanish prelate and active partisan in the Carlist wars of Spain. He was a native of Aragon. In 1820, when the constitution of 1812 was proclaimed by the Spanish army, he declared against that act, and in reward of his loyalty received the see of Tarazona. He kept up communications with the royalist guerilla leaders, and as he was known to have furnished them with funds, he was soon attacked by the Constitutionalists, and only escaped death by flight. In 1823, Ferdinand's authority having been re-established, Abarca returned to Madrid. He was now translated to the see of Leon. He soon attached himself to the party of Don Carlos; and in 1826, when the duke d'Infantados entered the ministry, Abarca was frequently employed in public affairs. The king, however, took offence at his daily visits to Don Carlos, and inquiries having been instituted by the police, it was found that he was deeply implicated in schemes for raising Don Carlos to the throne. He was at once exiled. When the will of Ferdinand VII. in favor of his daughter Isabella was proclaimed, Abarca protested against it, and took part in the Carlist movements at Vittoria and Logrono. He resigned his diocese to follow Don Carlos, whom he accompanied to England, and who, in gratitude for his services, made him his prime minister. In 1834 he was summoned by the queen's government, and, not making his appearance, was condemned to death by default. In 1836 he was dispatched on a secret mission by the Carlists, and was arrested at Bordeaux by Cavaignac, on the charge of plotting with the English Tories for the assistance of Don Carlos, and was sent out of France to Frankfort, whence, however, he escaped into Holland, and returned into the Basque provinces by sea. He fell at last into disfavor with the Pretender for being too moderate in his views, and was even put under arrest, but, recovering the confidence of the pseudo prince, he was again honored with a shadowy title in his phantom court. In 1839, continuing his intrigues, and attempting to overthrow General Maroto, he was banished and retired into Italy, where he died June 21, 1844.

ABARIM, or **ABORN**, a mountain in Palestine, on the east side of the Jordan, north-east from the Dead sea. Here was the encampment of the Israelites, and upon Nebo, its summit, Moses died.

ABASCAL, DON JOSÉ FERNANDO, viceroy of Peru, born at Oviedo in 1740, died at Madrid, June 30, 1821. In 1796 he was sent to the island of Cuba, and defended Havana against the English. Thence he was transferred to the kingdom of New Galicia, and afterwards was appointed viceroy of Peru. On his journey to his new post he fell into the hands of the English, by whom he was, however, soon released. On his arrival at Lima in a time of great political excitement, he distinguished himself by his moderation, by his judicious administra-

tive reforms, and by internal improvements. In gratitude for his public services, the Spanish Cortes, on his return to Spain in 1812, voted him the title of Marquis de la Concordia.

ABASOLA, MARIANO, Mexican revolutionist, born near Dolores, in Guanajuato. At the time Hidalgo appeared before the Alhondaga of the capital city of that province, Abasola was about thirty years of age, and consequently must have been born in or about 1780. He was one of the earnest supporters of Hidalgo, was colonel of one of his corps, and summoned Riasion to surrender. He was conspicuous on that occasion for his courage and humanity in attempting to save the captured survivors from massacre. He was at Las Cruces, and after the disastrous battle of the bridge of Calderon, fled north to Saltillo with Hidalgo, with whom he was taken prisoner by Elizondo, March 21, 1811, and shot in Chihuahua in July of the same year. His body, and those of Aldama, Allende, and Hidalgo, were publicly exposed on stakes, and not buried until 1822, when Bustamante did honor to the memory of the victims.

ABATEMENT, in law, derived from the French *abatire*, to beat down, is the staying of a nuisance, the stopping of a civil action or indictment, by pleading to some preliminary matter, or the unlawful intrusion into a freehold.

ABATI, ANTONIO, Italian poet, native of Gubbio, died at Sinigaglia, 1667. He was attached as a poet laureate to the house of the Archduke Leopold of Austria. He then visited the court of France. He afterwards became governor of several towns in the papal states. The emperor, Ferdinand III., on the poet's application for a pension, presented him with an acrostic. He wrote, among other small matters, an epithalamium on the marriage of Louis XIV. with Maria Theresa, infants of Spain.—**NICOLÒ**, fresco painter, 1512–1571, known sometimes as Messer Nicolo. He was born at Modena, studied under Begarelli; his chief works are at Modena and Bologna.

ABATIS, or **ABATTIS**, in military strategy, a bulwark made of felled trees, in frequent use in rude mountain warfare. On emergency, the trees are laid lengthwise, with the branches pointed outwards to repel the invaders, while the trunks serve as a breastwork for the defendants. When the abatis is deliberately employed as the means of defending a mountain pass, for instance, the boughs of the tree are stripped of their leaves and pointed, the trunks are embedded in the ground, and the branches interwoven, so as to form a sort of *chevaux de frise*.

ABATTOIR is the name of large public establishments built by communities as a substitute for private slaughter-houses, where butchers are permitted to slaughter animals and perform the other operations of their trade which are injurious to the public health or comfort. They are always placed on the outskirts of cities, so as to avoid the passage of herds of animals through the streets, and for the sake of salubrity. For this last reason, if there is a river, the

abattoir is built below the town. Paris is, of all cities of the world, best provided with abattoirs; there is one at the end of each principal suburb. The building of these establishments was completed in 1812, and very soon after they paid a large interest upon the amount invested. The charge for the slaughter of an ox is \$1.20, and about 150,000 oxen being the yearly consumption of Paris, this item alone furnishes an income of \$180,000. An advantage no less important than the removing from populous streets those foci of pestilence, called slaughter-houses, is found in the security which abattoirs afford against the sale of unhealthy meat, proper regulations being there easily enforced, by which sick animals are not slaughtered before complete recovery, and dead carcasses are removed by the appointed officers. The parts of an abattoir are: 1. A large fenced space where the animals are enclosed the moment they arrive, and where each butcher may find at his leisure those which belong to him. 2. Stables and sheepfolds, where oxen, calves, and sheep are kept and fed until wanted. 3. Slaughter-houses to kill, skin, open, wash, and cut to pieces the animals. 4. Melting houses, where the fat is melted for tallow. 5. A tripe house, for the preparation of heads, feet, and other secondary parts. 6. Places of deposit for offal. 7. Water reservoirs. 8. Sewers. It is also necessary to provide lodgings and offices for the employees, stables for the butchers' horses, sheds for their carts, &c. The several parts of the buildings are, as much as possible, divided so that each butcher has separate rooms, and so that the rooms belonging to the same man are adjoining. For this purpose there are generally two rows of slaughter-houses between the rows of stables; the space between the slaughter-houses and the stables is partitioned by fences, making thus a court-yard for every butcher between his stable and his slaughter-house; and the space between the two rows of slaughter-houses is closed at each end with iron railings and gates, so that no infuriated animal can escape after once entering the stables. Over each stable is a hay loft, and over each slaughter-house is a room for depositing the fat before it is melted. This room is closed only by lattice-work, to allow a free circulation of air. It is necessary, in building the slaughter-houses, to take particular care not to leave any recesses, nor to use any porous stone in which the blood or other liquids may enter and putrefy. The floor and sides as high as six feet are covered with flat stones, well cemented, as if it were a cistern; the floor is inclined towards the sewer, and water pipes are disposed for frequent and thorough washings. The roof of the slaughter-house is always made to project nine or ten feet from the wall. This keeps the building cool by preventing the rays of the sun from striking the walls. The places of deposit for offal are uncovered spaces, enclosed by walls three feet high, with water-proof flagging. The offal is taken away

every day and the place washed. The reservoirs of water may be placed over the stables provided for the butchers' horses, which in this case should be vaulted. The establishment has to be over a main sewer of the city; numerous branch sewers flow to this from the different parts of the abattoir. It is important, in a place where so many animal substances are acted upon, to have every opening in the sewers on a water valve. This is an arrangement not at all costly, which allows of the water going in, but prevents any effluvia from coming out; it is used in London in houses opening directly in the main sewers.

ABAUJVAR, a county or district of Upper Hungary, containing an area of 1,117 square miles, and a population of 175,000 persons. It is celebrated as having been the seat of most of the revolutionary movements of the 17th and 18th centuries.

ABAUZIT, FIRMIN, theologian and antiquarian, born in Languedoc 1679, died at Geneva 1767. The revocation of the edict of Nantes banished his mother to Geneva while he was yet a boy, and the devotion of this heroic woman to the reformed church incited the young Firmin to an enthusiastic study of theology and the exact sciences. At Geneva he found every facility for such a course; and at the age of nineteen we find him so far advanced in his studies that, while travelling in Holland, he won the respect and friendship of Bayle and Basnage. In England he became the friend of Newton, and was distinguished by William III. A sincere Christian and profound scholar, Abauzit won the admiration even of his opponents. Voltaire and Rousseau spoke highly of his genius and wisdom. His principal writings consist of *An Essay on the Apocalypses*, *Reflections on the Eucharist*, and *The Mysteries of Religion*.

ABBADIE, JACQUES, a Protestant divine, born at Nay in France in 1657, died at London in 1727. After completing his studies at Sedan, he went to Germany and Holland, and became pastor of the French church of Berlin. In 1690 he came to England, and after preaching some time in London, was made dean of Kilaloe in Ireland. He was a warm partisan of William III., and wrote a defence of the revolution, and a history of the Assassination Plot. His most important works are *Traité de la Divinité de Jesus Christ*, and *Traité de la Religion Chrétiennne*.

ABBAS THE GREAT, of the dynasty of the Sophia, succeeded to the throne of Persia on the murder of his two elder brothers, in 1587. He elevated the Persian monarchy to its highest pitch of modern greatness. He conquered Gilan, Mazanderan, part of Tartary, and a great part of Afghanistan; and by the victory of Basorah, in 1605, over the Turka, he gained extensive accessions of territory on the western frontier. In 1611 he wrung from the Porte Koordistan and Erivan. Shah Abbas constructed the great high road of Mazanderan, 800 miles long, and 40 feet wide, of which parts are still

remaining. He suppressed the turbulent soldiery of the capital, the *koorghis*, a body similar to the Turkish janizaries, at once the protection and the terror of every sovereign; he fomented the sectarian differences of the *sheeahs* and the *soonnees*, and reduced the dogmas of the *sheeahs* into the form of a creed. The fame of Abbas extended to Europe, and ambassadors were sent to him from every court. The great shah was not exempt from the vices of despotism. He revelled in blood. Among other crimes, he put to death his eldest son, Sefy Mirza, for whose murder he always felt the bitterest remorse, and even compelled the wretched courtier who had been the instrument of his vengeance, to put to death his own son, that he might be no better off than his master. Shah Abbas died in January, 1628, in the 41st year of his reign.

ABBAS ~~HEK~~ ABDUL MOTTALLIB, uncle of Mohammed, born at Mecca A. D. 566, died A. D. 652. He was the progenitor of the Abbassides dynasty. Its halo was not, however, thrown around his name for several generations, when an adventurer requiring a title to his usurpations, traced his descent to Mohammed's uncle. He was only four years the senior of his illustrious nephew. Abbas, who had the care of the holy well of Zemzem, was yet a pagan when the prophet commenced his religious career, and, holding a high position among his countrymen, hesitated for a long time to espouse his nephew's cause. There is some doubt whether his apparent enmity was real or feigned. In the battle at the well of Bedr, Abbas fought against his nephew, but was taken prisoner. So soon, however, as Mohammed's career seemed prosperous, the uncle gave in his adhesion, and became one of the most zealous supporters of the new faith. His influence and mediation brought over the family of the Koreishites; for when Mohammed, at the head of a powerful force, was about laying siege to Mecca, Abbas went forward, and not only demonstrated to Abu Sofian the inutility of resistance, but induced him to come to Mohammed's camp and to have a personal interview, which ended in Abu Sofian's making the profession of faith on behalf of himself and his kinsmen. When Mecca surrendered to Mohammed, the holy well Zemzem was retained, in deference to the office of Abbas as distributor of its waters, though other pagan rites and institutions were unsparingly swept away. At the battle of Honein, Abbas rallied the fugitives, and recovered the fortune of the day. At Mohammed's funeral he was chief mourner, and such was the reverence in which he was held, that Caliph Omar, on occasion of a terrible drought, took the old man's hand, and prayed to Allah by the virtues of his companion, to have pity on the perishing people. Caliph Othman also, when he met the patriarch, dismounted and conducted him home. Othman presided at the obsequies of Abbas, who died at the age of 86, full of years and honor.

ABBAS Mirza, Persian prince, born 1788, died 1838. He was the second and favorite son of Feth Ali, shah of Persia. He was the declared enemy of Russia, but all his wars proved unsuccessful. In 1829 the populace of Teheran murdered the Russian embassy, and Abbas Mirza voluntarily went to Petersburg to give satisfaction, but was dismissed with honorable treatment. He was of amiable manners and chivalrous bravery; he was nominated by his father heir to the throne, to the exclusion of his elder brother. But the father survived both.

ABBAS PASHA, viceroy of Egypt, grandson of Mehemet Ali, born 1813, died 1854. He took an active part in the Syrian war, and commanded a cavalry division. After the brief reign of Ibrahim Pasha, Mehemet Ali's eldest son, Abbas Pasha, ascended the vice-regal throne as hereditary successor, in 1848. He went to Constantinople and was duly invested. He was a friend of administrative reform in his government, but had powerful adversaries at Constantinople, who endeavored to cripple his plans and reduce Egypt to a position of vassalage. In the late war he contributed largely to the wants of the sultan.

ABBASSA, sister of Haroun al Rashid, caliph of Bagdad. Her brother gave her in marriage to Giaffar, his vizier, imposing the condition, however, that the marriage should never be consummated. The condition was broken. The caliph learning the fact, Giaffar was ruined, and soon after lost his life, while Abbassa was driven from her palace, and lived in extreme destitution. Her reply to an inquirer into her distress is a celebrated example of serene fortitude among Oriental moralists: "Once I owned a palace and slaves, now I have but two sheepskins to cover me. Heaven must have seen cause to afflict me; I bow to its dispensations and am content."

ABBASSIDES, a Mohammedan dynasty, descended from Abbas, the uncle of Mohammed. After the massacre of the Ommyiades, the Abbassides held the supreme temporal and spiritual power of the caliphs for nearly 400 years, until by the appointment of the Emir al Omrah, an officer in whom the executive power was vested, the Abbasside caliphs abandoned their prerogative, and were reduced to the rank of spiritual directors. After the massacre of the Ommyiades, the first dynastic caliphs of Islam, the Abbassides maintained themselves on the seat of Mohammed until A. D. 1258. Abul-Abbas-Al-Saffah died A. D. 754, and was succeeded by Al Mansour. To this great line belonged the celebrated Haroun al Rashid, a prince whose abilities and fame have been sullied by despotic and capricious cruelty, exercised on his best friends. Under Haroun al Rashid's immediate successors, the distant provinces of Spain and the Barbary States declared their independence of the caliphate, nor were they ever again brought even under spiritual subjection. The forma-

tion of a body of mercenaries, raised from the Turks as a body guard to the caliph in the reign of Motassem, A. D. 818-841, introduced an element of decay into the caliphate. They became masters of the capital, and the disasters resulting from the want of unity and strength in the empire compelled the caliph Rhadi (934-940) to appoint an officer, the Emir al Omrah, who, like the Maire du Palais, under the degenerate successor of Charlemagne, was the real head of the state. From this time the caliphate was a mere title, conferring a spiritual dignity on the nominal sovereign in the eyes of those who acknowledged the right of the Abbassides family to the throne. During this period the independent kingdoms of Egypt and Syria, of Persia and Khorassan, together with the Mohammedan kingdoms in India, were established. The religion of Mohammed was spread from the frontier of China to the extreme west of Europe, including one-third of the population of the known world. The Abbasside dynasty, after having given thirty-two caliphs to Islam, was at last ended in the person of Mostanser, 1258, who was expelled from the throne of Bagdad by the barbarian Hulaku Khan, at the head of his Tartar hordes.

ABBATUCCI. I. **JACQUES PIERRE**, a French General, born in Corsica 1726, died 1812. He was a rival and political opponent of Paoli, but patriotically submitted to his control in the war which he carried on successfully with the Genoese. After the invasion of the French he received the title of lieutenant-colonel in the French army. Louis XVI. made him Brigadier General, and he was appointed to protect Corsica against the attempts of Paoli and the English. After the capture of Toulon he was obliged to resign his rank, and returned to France, where he was made general of the division. He remained there until, in 1796, when the English left Corsica, he was able to return to his native land. II. **CHARLES**, the son of the former, born 1771, died Dec. 8, 1796. He served in the early part of the revolution as artillery officer, on the Rhine, and in 1794 was Pichegru's adjutant. He was raised to the rank of general of brigade for his bravery at the first passage of the Rhine. He died from a wound received in an engagement with the Austrians at Hünningen. Moreau caused a monument to be erected on the spot to his memory. III. **JEAN CHARLES**, a diplomatist, nephew of Charles, born 1791. In the revolution he served in the Corsican national guard, and being captured by the enemy, remained eighteen months in captivity. Upon his return to France he was employed in diplomatic business of great importance, and was at one time administrator in Corsica. After the July revolution he was several times elected to the Chamber of Deputies. After 1848 he distinguished himself in the National Assembly by his opposition to the social democratic movement. He since took an active part in the administration of Louis

Napoleon, and was appointed by him minister of justice and keeper of the seals, Jan. 22, 1852. He died Nov. 11, 1857.

ABBÉ. This title or office was one of the many social conditions eradicated by the French revolution. Anterior to that event, any Frenchman who chose to devote himself to divinity, or even to finish a brief course of study in a theological seminary, became an abbé, waiting hopefully for the king to confer on him an abbey; that is, a certain portion of the revenues of a monastery. In the mean time he engaged in any and every kind of literary labor. He exerted an important influence upon society, and was to be met with everywhere; at the court of the monarch, the public tribunals, the salon of the fashionable lady, the opera, the playhouse, and the café. An abbé was to be found in almost every wealthy family, either as the friend of the house or the private tutor of the children. There were many good and noble abbés who acquired distinction as theologians, poets, and savans; but as a class they subjected themselves to popular suspicion and literary satire.—**ABBES COMMENDATAIRES** was the title of the two hundred and twenty-five abbots, appointed by the king of France. Each received one-third of the revenues of a monastery; but his authority did not interfere with that of the *prieur claustral*, who had exclusive superintendence. The *abbayes des savans* were less important sinecures, applied as pensions for scholars and the untitled scions of aristocracy.

ABBEOKOOTA, a large city of Central Africa, and capital of the Egba nation, is situated on the eastern bank of the river Ogoon, in lat. 7° 8' N. long. 8° 20' E. It contains about 75,000 inhabitants, composed mainly of refugees from more than 100 small towns which were destroyed by war in the year 1817. The length of the city is four miles, and it is from two to three miles wide. The walls, which include much open space covered with extensive farms, are about 15 miles in circuit, and the town itself is ten miles around. The river Ogoon, opposite Abbeokoota, is about 100 yards wide, and navigable for canoes to the rapids, near the southern wall of the city, and might be navigable for steamers of light draught to a point about twelve miles below. The city, by the river, is ninety miles from Lagos, and sixty miles N. E. from Badagry, on the Bight of Benin. Abbeokoota is built upon a granite foundation, 567 feet above the level of the sea. Much of the soil is poor and not very productive, but the water is pure, and the climate salubrious. The surrounding country is generally open or lightly timbered, corresponding, in a measure, to our prairie land. The absence of timber is attributable to long-continued cultivation. Most of the Egba kingdom, however, is very fertile, and covered with forests, like other parts of Guinea. Egba, fifty years ago, contained nearly 300 towns and villages, some of them of large population, but now the village of Oko-obba, in the

south-west of the kingdom, is the only one remaining, war having destroyed all of the others. Abbeokoota then had no existence. Tradition says that anciently the Egba country was a province of the Yoruba kingdom, but a giant named Lishabbeh headed a rebellion against a cruel king, and the Egbas became an independent people, under a king of their own. The giant is still worshipped by them, and his farm, which they believe it would be sacrilege to reclaim, is shown on the east side of the Ogoon, about twelve miles below Abbeokoota. After a long time the Egbas abolished royalty, but, substituting no efficient general government in its stead, jealousies arose between the chiefs and people of independent Egba towns, which led to civil war, and the Yorubas and Ijebus, by assisting one town after another, succeeded in depopulating the whole country. Multitudes were sold to the slavers, and shipped to Cuba and Brazil, where many of them are still living. Several thousands were recaptured on the high seas, and sent to Sierra Leone, many fled to adjacent countries, and some are still slaves to the Yorubas. So complete an overthrow of a whole tribe has seldom happened, even in Africa. Abbeokoota was founded about forty years ago by the refugees who were fortunate enough to escape the general destruction. The first few settlers took shelter on the top of a steep granite hill, under an immense shelving rock, and that part of the country being uninhabited, they found in it a place of safety. These were in time joined by others, and the settlement was appropriately named *Abbe-Okoota*, or under-stone. Some of the inhabitants still worship the great sheltering rock under the name of *Otumoh*, or the builder. The old people remember their former homes with affection, and sometimes express their desire to return; but the young men are opposed to resettling the old towns, and insist on retaining command of the river, and the trade with Lagos. The enemies of the Egbas here made several attacks upon the new city, but the remnants of the nation placed themselves under command of a balogun, or general, named Shodekkeh, and repulsed the powerful and warlike Mohammedans of Ilorin, and the combined forces of Ijeba and Otta. A third army, from the strong city of Ibadan was also defeated. The king of Dahomey, hearing of these famous victories, made an alliance with Shodekkeh, and the Egbas became as much feared as they were hated. The people of Abbeokoota, being cut off from direct communication with the coast, from which they desired to obtain arms and merchandise in return for the slaves captured in their successful wars, Shodekkeh resolved to open a way to Badagry, through the country of his old enemies, the Ottas. He took the town of Otta, but allowed the people to remain, on condition that they should not rebuild the walls. Adoo, on the Badagry road, was then besieged for several years by a strong Egba force, which quietly settled down and cultivated farms on the eastern side of the

town, while the besieged did the same on the west, the only object of the siege being to afford security to the Egba caravans which were now trading to Badagry. Shodekkeh died in 1842, and on hearing of his death, the treacherous king of Dahomey marched against the Egbas at Adoo, probably to capture some of them as slaves; but he was defeated, and the enemy obtained his royal chair. In 1852 the Abbeokootas became masters of the Ogoon river, and opened an active trade with Lagos. By their trade with Badagry they became acquainted with the Wesleyan missionaries, and Shodekkeh invited them to come among his people. They did so, and were warmly received by both ruler and people. Some of the converted Egbas of the Episcopal congregations in Sierra Leone returned home accompanied by an Episcopal missionary, through whose representations another mission was established in Abbeokoota. Many converted and unconverted Egbas now left Sierra Leone, and flocked to Abbeokoota, and the work of enlightenment and conversion has gone steadily forward ever since, the different missions numbering about 600 communicants. Two native converts, Crowther and King, have translated several books of the Old and New Testaments, which are handsomely printed and bound. Hundreds of people have learned to read their native language, and the whole tribe has advanced considerably towards civilization. Abbeokoota, by her opposition to the slave trade, gave great offence to the traders, and it began to be felt that unless she was put down, the traffic must eventually be extinguished. Gezo, king of Dahomey, impelled by ancient enmities and a desire to wipe out the disgrace of his former defeats, as well as to remove the bar to his interests, as the first slave trader of the country, on the 3d of March, 1851, made an attack upon the city, at the head of 10,000 warriors and 6,000 Amazons. At the approach of the enemy, the Abbeokootas, well armed with guns, marched out 15,000 strong, through the Badagry gate, with firm and solemn countenances, and in stern silence to engage him. They were separated into three parties, the first proceeding half a mile to the ford, on the Badagry road; the second, under General Ogunbonna, crossed the river near the wall, and the third remained near the gate. The enemy divided into two parties, one of which came to the ford, and the other, under the king, proceeded over the plain to attack Ogunbonna. The Dahomans made a furious onset, and drove the division from the ford into the city, but they soon rallied, and the guns roared along the walls for a mile or more, while Ogunbonna, after a feint at retreating, stood firm on the prairie, and drove back the king's forces. Both parties lay down on the field at sunset. During the night the king moved off, and most of his army followed about daybreak. They were hotly pursued by the Egbas for about fifteen miles, and although they several times turned about and attempted to rally, were again put

to flight. The enemy lost on the field 1,200 men, and their total loss was probably not less than 2,000 slain, and several hundred prisoners. The Egba loss was not serious, considering the magnitude and duration of the engagement. After this affair the Dahomans were no longer terrible, and their king soon made a treaty with the English for the abolition of the slave trade in his dominions. At present there is peace on the slave coast, and the people begin to realize its benefits. (See *Narrative of Adventures and Missionary Labors in Central Africa in 1849-1856*, by T. J. Bowen.)

ABBESS, the superior of a convent of female religious in some of the more ancient orders. An abbess is solemnly blessed and inducted into office by a bishop, and uses the ring, cross, and crozier, as the insignia of her office.

ABBEVILLE, a well-built, but dirty, fortified town of France, department of Somme, on the river Somme, 25 miles N. W. of Amiens. In 1852 the population numbered 19,158. The town contains a fine cathedral, with other public edifices and manufactories—one of them, of cloth, founded in 1669 by Colbert. Vessels of 150 tons' burthen sail up the Somme to Abbeville.

ABBEVILLE, a district in the W. N. W. part of South Carolina, bounded on the S. W. by the Savannah river, and by the Saluda on the N. E. The soil is generally fertile, well watered, and cultivated; the Greenville and Columbia railroad runs through the district. Abbeville is one of the most thriving districts in that part of the State, having a population of 32,818. Capital, Abbeville.

ABBEY, a convent or monastery which is the seat of an abbot or abbess.

ABBITBBE, the name of a lake, river, and trading station in British North America, near Hudson Bay. Lat. of station 49° N., long. 78° 10' W.

ABBON, or **ABBO CERNUUS**, a French monk in the 9th century, the author of an epic poem in Latin, descriptive of the siege of Paris by the Northmen in 886-7, at which he was present. The poem is only valuable as being a trustworthy account of the event.

ABBO FLORIACENSIS, a learned French monk, abbot of Fleury, and author of "Lives of the Popes," was born near Orleans in 945, and slain in 1004, while striving to quell a fray. He applied himself with great ardor to the study of the sciences. He was several times engaged in controversies with the bishops as champion of the rights of his order. In 986, and again in 996, Abbo was sent to Rome by King Robert, to persuade the pope to abandon his intention of placing the kingdom under interdict, and was in each case successful.

ABBOT, a prelate of high rank in the Roman Catholic church, who governs a principal monastery of one of the old religious orders, which may also have minor convents de-

pending on it. An abbot is solemnly consecrated by a bishop, though this is regarded as a merely ecclesiastical and not a sacramental rite. Abbots are allowed to use the mitre, pastoral cross, ring, and crozier, and to celebrate pontifical mass, and are styled right reverend. Some of them, in former times, exercised a quasi-episcopal jurisdiction over a small district, and were allowed to confer tonsure and minor orders. During the middle ages many abbots, especially in England, were powerful feudal barons. In modern times they are simply superiors of religious houses. In ecclesiastical councils an abbot has a deliberative but not a decisive voice.

ABBOT, ASHET, D.D. a distinguished clergyman in Massachusetts, was born at Andover, Aug. 17, 1770, and died on the return voyage from Havana, June 7, 1828. He studied at Harvard University, and in 1794 became minister of the Congregational society in Haverhill, where he remained eight years. In 1802, he took charge of a parish in Beverly, and passed the remainder of his life, some twenty-four years, in performing the duties of his position in that place. He spent the winter of 1827 in Charleston, S. C., and the following one, the last of his life, in Cuba, on account of ill health. It is probable that he died of yellow fever. Dr. Abbot was entirely free from sectarian bitterness, and deeply deplored all violent religious controversy. He published a series of "Letters from Cuba," and a number of sermons.

ABBOT, BENJAMIN, LL.D. one of the most learned and successful instructors of youth that this country has produced, for fifty years principal of Phillips Academy, at Exeter, N. H., was born about the year 1763, and died at Exeter, Oct. 25, 1849. He was educated at Harvard University, and after receiving his degree, at once took charge of the academy. That institution was founded by John Phillips, who made such ample provision for its support, that instruction was given gratuitously to all the students whom the building could contain; and board in addition was furnished to ten or twelve young men of superior merit, without charge. Dr. Abbot was an accomplished classical scholar, critical and exact in teaching, and attained such a reputation, that pupils were sent to him from all parts of the country, while applications were often made in advance, long before vacancies occurred. He stood at the head of his profession in New England. He possessed great dignity and firmness, a quick perception of character, and an even temper, which obtained him the ready obedience and love of his pupils. Among those of his scholars who obtained distinction may be mentioned Daniel Webster, Lewis Cass, Edward Everett, Jared Sparks, John A. Dix, Joseph S. Buckminster, Joseph G. Cogswell, George Bancroft, and John G. Palfrey. When he resigned his office in 1838, there was a gathering of his old pupils from all quarters to present him with a testi-

monial of their regard. The remainder of his life was passed in dignified retirement.

ABBOT, CHARLES, from 1802 till 1817 speaker of the British house of commons, born 1757, died May 8, 1829. He served through a long and useful career in parliament, occupying, at different times, offices of honor and emolument. He was the author of one or two treatises on juridical reform. In 1817 he was created Viscount Colchester, and closed his career as a member of the house of commons.

ABBOT, CHARLES, Lord Tenterden, English lawyer, born Oct. 7, 1762, died Nov. 4, 1832. He was appointed lord chief justice of the King's Bench in 1818, and in 1827 was created a peer. He was not remarkable for brilliant abilities at the bar, but was esteemed an able judge. His treatise on maritime law is a standard work, known to all lawyers.

ABBOT, GEORGE, archbishop of Canterbury, born Oct. 29, 1562, died at Croydon, Aug. 5, 1633. In 1604, when by order of King James, the translation of the Bible was commenced, Abbot was one of the eight divines entrusted with the task. In 1609 he was made bishop of Lichfield and Coventry; in Jan. 1610, bishop of London; in November following, archbishop of Canterbury. He steadfastly opposed King James's project of a divorce between Lady Frances Howard and the Earl of Essex, and with an equal degree of zeal combated the royal decree permitting Sunday sports. While visiting Hampshire for the restoration of his health, he was so unfortunate as to accidentally shoot a gamekeeper with the arrow aimed at a deer, and this misfortune preyed on his health and spirits during the remainder of his days. From his hands Charles I. received his crown, and although he never succeeded in gaining that monarch's favor, he yet commanded his respect and confidence.

ABBOT, MAURICE, Lord mayor of London in 1638, was the youngest brother of George Abbot, archbishop of Canterbury; he died Jan. 10, 1640. He acquired a fortune by commercial pursuits, was a director in the East India Company, assisted in colonizing Virginia in 1624, and received knighthood from Charles I.

ABBOT, ROBERT, bishop of Salisbury, elder brother of the archbishop, was born at Guildford in 1560, and died March 2, 1617. He studied at Balliol College, Oxford, and after taking his degree, soon attained distinction as a preacher. He was appointed chaplain to King James in the early part of his reign, Master of Balliol College in 1609, and Regius Professor of Divinity at Oxford, in 1612. His lecture upon the supreme power of kings obtained him the bishopric of Salisbury, and he was installed Dec. 8, 1615. He performed the duties attached to the office with unremitting diligence until his death, which took place some two years after his consecration.

ABBOT, SAMUEL, a wealthy Boston merchant, one of the founders of the Andover Theological Seminary, was born at Andover, and

died April 30, 1812, aged eighty. In 1807 he made a donation of \$30,000 towards establishing the seminary, and at his death left it \$100,000 in addition. He also gave away large sums for various charitable objects. He was a conscientious and upright man, of rigidly methodical habits. He lived with his wife above fifty years, and received a great deal of aid from her in conducting his business.

ABBOT, SAMUEL, a native of Wilton, N. H., was born in 1786, and died in 1839. He invented the process by which starch is made from the potato.

ABBOT, a mysterious character of this assumed name, who occupied a hut on Goat Island, and was called "the Hermit of Niagara Falls." His appearance and accomplishments indicated that he had once been favored by fortune, but he would never give any clue to his past history. He was wont to write in English, Spanish, Italian, and Latin, and to destroy the compositions as soon as made. The island became too much frequented for him, and he removed to the main land. It was his habit to bathe three times a day in the river; one morning, in the year 1885, the ferryman saw Abbot's clothes lying on the bank, but no trace of their owner. He never afterwards made his appearance, and no doubt was drowned.

ABBOTSFORD, the seat of the late Sir Walter Scott, from which his baronet's title was taken. It is situated in the parish of Melrose, in Roxburghshire and Selkirkshire, on the right bank of the Tweed, and in the neighborhood of the abbeys of Melrose, Jedburgh, and Dryburgh, and the towns of Selkirk and Galashiels. Sir Walter bought the estate in 1811 and gave it its present name, adopted from an adjoining ford in the Tweed. It is surrounded by beautiful natural scenery, and is rich in historical recollections. Like so many old cloisters, (of which Abbotsford had been one,) it lies on flat ground near the river, with a lofty overhanging bank in its rear. The present house and grounds are entirely the creation of its late illustrious owner. The house is irregular, and after the pattern of the old English manor houses, flourishing plantations hem it round, and a beautiful haugh or meadow on the opposite side of the Tweed forms its immediate prospect. The external walls of the house and garden are intercalated with antique carved stones taken from old castles and abbeys. The inside was decorated with beautiful paintings, the work of D. R. Hay of Edinburgh, and a library of curious works and British antiquities. Abbotsford is now occupied by James Hope Scott, Esq., and his wife, the sole surviving granddaughter of Sir Walter at the present time, (1857.)

ABBOTS-LANGLEY, a parish in Hertfordshire, England, noted as the birthplace of Nicholas Breakspear (Adrian IV.), the only Englishman who ever became pope. "The Bookseller's Retreat" in this place is an institution founded by English booksellers, as a home for decayed members of the trade.

ABBOTT, JACOB, a writer for children and youth, born at Hallowell, Maine, in 1808, educated at Bowdoin College and the Theological Seminary at Andover. He has been a very voluminous author of histories, tales, and moral writings for youth, generally of an agreeable and instructive kind, comprising the series of the "Young Christian," 1825, the "Corner Stone," the "Rollo," "Lucy," and "Jonas" books in twenty-four volumes, thirty volumes of biographies of celebrated characters, and many other works.—**JOHN S. C.**, brother of the preceding, also an author, born at Brunswick, Maine, in 1806, educated at the same seminaries, and has been settled in the ministry at Worcester, Roxbury, and Nantucket in Massachusetts. Since 1844 his time has been occupied in authorship. His first work, "The Mother at Home," has been translated into several of the languages of Europe, including the Greek, and into the Turkish and Tamil languages in Asia. He has written other works of a moral cast, and several biographies, but is principally known of late by his "History of Napoleon," and other books relating to the same subject, remarkable for a thorough-going defence of Napoleon's character and actions, such as had not before appeared in English. He is at present engaged upon a History of the French Revolution.

ABBREVIATIONS, certain contractions of various words and phrases, effected by omitting some of the letters or syllables, or by employing arbitrary signs or characters in their place. The object in view is the saving of time and space. They are found in every written language, but since the art of printing was discovered, are much less used. The Romans called them *notae*, and Lucius Annæus Seneca made a list of them, embracing upwards of five thousand. The abbreviations in most ordinary use are those of names and titles. Physicians and lawyers use them largely for the sake of dispatch. The Jewish writers not only throw out letters and syllables, but often omit every thing except the initial letter. They even take the initials of a continuous series of words, and uniting them with the aid of vowels, make barbarous words standing in the place of all those thus abridged. The monks of the middle ages used so many abbreviations in copying the works of the Greek and Latin writers, that only experienced persons can decipher them. The Germans use them to a greater extent than any other civilized nation, for words in common use. Many words in modern languages originated in Latin abbreviations, which illiterate persons mistook for the words themselves. The following are the principal abbreviations in common use:

A. B. Bachelor of Arts.	Ark. Arkansas.
Abp. Archbishop.	A. U. C. Ab urbe condita.
A. D. Anno Domini, in the year of our Lord.	Bart. or Bt. Baronet.
Admr. Administrator.	B. C. before Christ.
Ala. Alabama.	B. D. Bachelor of Divinity.
A. M. Anno Mundi, in the year of the world.	B. L. Bachelor of Laws.
A. M. Master of Arts.	Bp. Bishop.
A. M. ante meridiem, forenoon.	B. V. Blessed Virgin.
	Cal. California.
	C. Consul, Caesar.
	C. E. Canada East.

C. E. Civil engineer.	Md. Maryland.
Cent. Centum, or hundred.	Me. Maine.
Chap. Chapter.	Messa. Messieurs, gentlemen.
Col. Colonel.	Mich. Michigan.
Cons. Consules.	Minn. Minnesota.
C. B. Civis Romanus.	Miss. Mississippi.
Cr. Creditor.	Mo. Missouri.
Ct. or Conn. Connecticut.	M. P. Member of Parliament.
Cwt. hundred weight.	MS. manuscript. MSS. manuscripts.
C. W. Canada West.	N. north, note, noon.
D. five hundred.	N. A. North America.
D. denarius, a penny.	N. B. nota bene, mark well.
D. C. District of Columbia.	N. C. North Carolina.
D. D. Doctor of Divinity.	N. E. New England.
Del. Delaware.	Nem. con. nemine contradicente, unanimously.
D. F. Fidel defensor, defender of the faith.	N. H. New Hampshire.
D. G. Del Gratia, by the grace of God.	N. J. New Jersey.
Do. Ditto, the same.	No. Number.
Dr. doctor; debtor.	N. P. Notary Public.
D. V. Deo volente, God willing.	N. S. new style.
Dwt. Pennyweight.	N. Y. New York.
E. East.	Ob. Obitt, died.
E. G. exempli gratia, for example.	O. Ohio.
Eq. Equire.	O. S. old style.
Err. Executor.	Ox. Oxon., of Oxford.
F. G. S. Fellow of the Geological Society.	Oz. ounce.
F. R. S. Fellow of the Royal Society.	Pa. Pennsylvania.
Flor. Florida.	Parl. Parliament.
Ga. Georgia.	Per cent. per centum, by the hundred.
Gal. gallon.	Pl. Plural.
Gen. General.	P. M. post meridiem, afternoon.
G. C. B. Knight of the Grand Cross of the Bath.	P. M. Post Master.
Gov. Governor.	P. S. postscript.
Hhd. hoghead.	Q. Question.
H. M. S. Her Majesty's ship.	Qy. Quere, query.
Hon. Honorable.	Q. C. Queen's Counsel.
H. R. H. His or Her Royal Highness.	Q. E. D. quod erat demonstrandum, which was to be demonstrated.
Ia. Iowa.	Q. S. Quantum sufficit, a sufficient quantity.
Ib. or Ibid. Ibidem, in the same place.	Q. V. Quod vide, which see.
Id. idem, the same.	R. A. Royal Academy, Royal Artillery.
I. e. id est, that is.	R. E. Royal Engineer.
I. H. S. Jesus Hominum Salvator, Jesus the Saviour of mankind.	Rev. Reverend.
Ill. Illinois.	R. I. Rhode Island.
Incoq. Incognito, unknown.	R. N. Royal Navy.
Ind. Indiana.	Rt. Hon. Right Honorable.
Inst. instant, of the present month.	S. south, or solidus, a shilling.
J. P. Justice of the Peace.	S. A. South America.
K. B. Knight of the Bath.	S. C. South Carolina.
K. G. Knight of the Garter.	Sec. Secretary.
Kt. Knight.	S. F. Q. E. Senatus Populique Romanus.
Ky. Kentucky.	Sa. scilicet, to wit, namely.
La. Louisiana.	St. Saint, and street.
L. or lib. libra, a pound; or liber, a book.	Tenn. Tennessee.
Lieut. Lieutenant.	U. C. Urbs Condita, year of Rome.
L. L. D. Legum doctor, doctor of Laws.	Ult. ultimo, last month.
L. S. Locus Sigilli, place of the seal.	U. S. United States.
M. milia, or a thousand.	U. S. A. United States Army.
M. A. Master of Arts.	U. S. N. United States Navy.
Mass. Massachusetts.	Va. Virginia.
M. C. Member of Congress.	Viz. videlicet, namely.
M. D. Medicine doctor, doctor of medicine.	Vt. Vermont.
	Yr. Your, and year.
	Wis. Wisconsin.
	W. west.
	&., et, and, &c., et cetera, and so forth.

ABBREVIATORI, a body of notaries belonging to the papal court, whose business it is to draw up briefs, and do various kinds of writing usually devolving on official secretaries. They are 72 in number, and their office is in many respects an important one, and has been filled by some distinguished ecclesiastics. Pius II. was formerly an abbreviator.

ABBT, THOMAS, a philosophical writer, born at Ulm, Nov. 25, 1738, died at Bückeburg, Nov. 3, 1766. In 1760 he was made

extraordinary Professor of Philosophy in the Frankfort University. The following year he accepted a call to the mathematical chair at Rinteln. In 1763 he laid the foundation of his later reputation by his work on Merit. In 1765 he received a judicial appointment at Buckeburg, which office, however, he was destined to fill but a short time.

ABD, an initial word in proper names common to the Semitic languages. It signifies "servant," and is usually coupled with the name of the divinity or of a moral attribute; thus, Abd-allah, "the servant of Allah;" Abd-errahman, "servant of the merciful."

ABDALLAH, son of Abd el Malek ben Omar, A.D. 785, a successful leader of the Spanish Moors in their irruptions into southern France. He laid siege to and captured the towns of Giroune and Narbonne.

ABDALLAH, the last chieftain of the Wahabee sect in Arabia. He was defeated by Ibrahim Bey, son of Mehemet Ali, who exerted himself to exterminate a heresy, the political success of which might become dangerous to his power. Ibrahim finding open war inefficient, treacherously seized him while conferring on terms of peace. He sent the chief to Constantinople, where he was paraded through the streets and beheaded as a rebel, Dec. 1818.

ABDALLAH BEN ABD EL MOTTALIB, father of Mohammed, born at Mecca A.D. 545, died 570. The paternity of the prophet is Abdallah's sole claim to distinction. He married Amina, daughter of Wahb, chief of the tribe of Benu Zahra. In youth he narrowly escaped sacrifice at his father's hands, who, being childless, had made a vow that he would sacrifice one of his children to the gods if they would grant him a family. The family came, and the lot being taken, fell on Abdallah. The father was on the point of fulfilling his vow, when by the advice of his friends he stayed his hand, and consulted a wise woman, who directed him to place ten camels, the price of blood among the Arabs, on one side and his son on the other, and to cast lots between them; and as often as the lots should be against the youth, he was to add ten more camels. The experiment was tried, and the lot was against Abdallah ten times; the father sacrificed one hundred camels and saved his son. On the evacuation of Mecca by the Abyssinians, who had invaded the country, Abdallah was sent by his father to Medina, then called Yathreb, to buy provisions for the famished Meccaites, who had been obliged to fly to the mountain fastnesses. Abdallah died on the journey, leaving his wife pregnant with her first child. That child was Mohammed.

ABDALLAH BEN YASSIN, founder of the warlike tribe of Almoravides in Barbary, about A.D. 1050, which were afterwards conspicuous for the subjugation of part of Spain and the founding of a dynasty in the Moorish kingdom.

ABDALLAH BEN ZOB AIR, sultan of Mec-

ca, born about 622, died 692. He was the first-born of the disciples of Mohammed, after the Hegira, and his advent was a matter of great rejoicing, as it belied the envious prophecies of those who affirmed that the new sect would perish in its own generation, and without successors. He was the son of Zobair, a friend and companion of Mohammed, and of Asma the sister of Ayesha, the prophet's favorite wife. He was thus Mohammed's nephew by marriage, and was brought up under his immediate tutelage. After Mohammed's death, the question of succession was one of great moment. On the death of the prophet's immediate successors, and the election of Ali, Mohammed's nephew and son-in-law, to whom Ayesha was decidedly opposed, Abdallah sided with his aunt and resisted Ali's claims. He was, however, severely wounded in a contest with the rival faction; but on the assassination of Ali he boldly renewed his opposition to Moawiyah, and on Moawiyah's death raised the standard of revolt against Yezid his successor. He seized upon the holy city, and maintained himself against both the remonstrances and the arms of the caliph. At this early period there were three distinct governments in the territories subjugated by the Arabs, in Persia, Syria, and Arabia. Abdallah's chief opponent was Yezid, caliph of Damascus. In the siege which he sustained at Mecca, the temple of the holy Caaba was destroyed by the assailants, and the death of Yezid alone saved the city from capture by his generals. Abdallah was now acknowledged sultan and caliph of Mecca by the Arabs, and rebuilt the city and temple, not without opposition from his superstitious subjects, who considered it sacrilege to touch the stones of the sacred edifice, and retired from the spot when Abdallah himself first commenced the work. He completed the restoration A.D. 685. Yezid's son, Moawiyah II. abdicated in favor of Merwan, on whose death his son Abd el Malek ben Merwan succeeded him, and pushed the war vigorously against Abdallah, by whose anathemas Abd el Malek's subjects, when they made the pilgrimage to Mecca, were greatly influenced or scandalized. Abd el Malek vanquished Abdallah's brother and lieutenant Mozab ben Zobair in the plains of Persia, added Irak to the caliphate of Damascus, and despatched an army against Abdallah at Mecca. The holy city was a second time besieged, and resisted for several months. Abdallah, at the age of seventy-two, defended himself to the last, and when the city was taken by storm, retired to the Caaba, where he was killed by a blow on the head from a tile. Abdallah ben Zobair was described by Moawiyah the First as brave to rashness and crafty to perfidy.

ABDALLAH BEN BALKIN, fourth and last sovereign of Granada, cotemporary of Abad III., king of Seville. He was a patron of letters, wrote commentaries on the Koran, and improved his capital with several fine edifices.

He was made prisoner by Yussuf Tashfyn, emperor of Morocco, and died in captivity at Aghmat in Africa.

ABDALLATIF, an Arabian writer and physician, born A. D. 1162, died 1281. He was patronized by the famous sultan Saladin. He wrote on the history and geography of Egypt. A manuscript of one of his works is preserved at Oxford, and an edition of which, with a Latin translation, was published at Oxford, entitled *Abdallatiph's Historia Egypti Compendium*. It was afterwards translated into French by the learned Sylvestre de Saoy.

ABDAIS, an eastern epithet applied to those who, in running about the streets, kill all they meet. It is a custom among the Malays, who having excited themselves with bang, a preparation of opium, run a muck, and slaughter every one, until they are themselves hewn down.

ABDAS, a Persian bishop in the beginning of the 5th century. He destroyed a temple of the magi, and in so doing irritated the reigning prince Yezdesid I., who had previously been tolerant of the Christians and their religion. The king ordered Abdas to restore the temple at once, on penalty of all Christian places of worship being destroyed. This the bishop absolutely refused to do, whereupon a general persecution of the Christians was set on foot, and he himself was the first to undergo martyrdom.

ABD EL KADER, an emir of the Bedouin tribe of Hashem Garabo, in the province of Oran, and western part of Algeria, was descended from an ancient family of Marabouts, that could trace its origin as far back as the caliphs of the Fatimite dynasty. His name at full length is Sidi el Hadji Abd el Kader Oulid Mahiddeen. He was born in 1807 near Mascara, and educated at a college for the study of theology and jurisprudence. His father, Mahiddeen, emir or prince of Mascara, enjoyed in his lifetime the highest repute for wisdom and sanctity, to such a degree indeed, that his house was an asylum for debtors and criminals. His influence gave rise to apprehensions in the Turkish governor of Oran, that he was projecting the subversion of the Turkish rule. To avoid the enmity of the bey, Mahiddeen made a pilgrimage to Mecca. He died in 1834, of poison administered to him by Ben Moossa, chief of the Moors of Tlemcen. Abd el Kader had accompanied his father to Mecca, and thereby gained his title of El Hadji (the holy). He is said to have early manifested powers far beyond his age; he read and wrote Arabic with facility, and during his pilgrimage taught himself Italian, or more probably the lingua Franca. In 1827 he visited Egypt, and spent some time in the court of Mehemet Ali, studying the reforms and the new system of that astute politician. His noble and prepossessing exterior, with his affability and simplicity of manners, won the affections of his countrymen, while the purity of his morals ensured their respect and esteem. He was the most accomplished of

Arab cavaliers, a perfect man at arms, and the bravest of the brave. The French occupation of Algiers met with little effective opposition from the Turks, but it aroused the fierce, independent spirit of the native tribes, and after shedding rivers of blood, and spending millions of treasure, the French held little more of the soil than their own garrisons. In 1831 Abd el Kader, the most formidable of their opponents, endeavored to consolidate the tribes into an organized system of resistance. His elder brother had already fallen in conflict with the French, when he began to harass them at the head of his own and the neighboring tribes, avoiding any thing like an engagement, and satisfied with surprising the outposts and cutting off convoys. In the spring of 1832, General Boyer, commandant of Oran, made an ineffectual demonstration against Tlemcen, Abd el Kader's stronghold. The emir was encouraged by this to commence more decided operations, and at the head of 5,000 Bedouins he ravaged the province of Oran, and even menaced the town itself, summoning the French to evacuate the territory. The courage and daring he showed in this expedition, though unattended by any practical result, won him the admiration of the Arabs, and no less than thirty-two of the tribes immediately declared for him, and he was elected chief of the believers in December, 1832, when only twenty-three years of age. He was thus placed at the head of 12,000 warriors, with whom he blockaded the city and intercepted all the communications. In April, 1833, General Desmichels, the successor of Boyer, made a sortie, and cut to pieces a number of the Garabata. On learning this disaster, he again advanced upon Oran, but without achieving any success; and on the 7th of May the French carried by assault the town of Arzew, one of the posts which enabled the Arab chief to keep up a communication by sea. These reverses did not, however, affect Abd el Kader's reputation with his countrymen. He garrisoned Tlemcen, and advanced against Mostaganem, a town in the possession of the Turks to the north-east of Arzew; but the French anticipated his movements, and seized Mostaganem. General Desmichels now endeavored to undermine Abd el Kader's power, and to induce the native tribes to acknowledge the supremacy of France. He succeeded in detaching the Smailas from Abd el Kader, a defection for which the chieftain afterwards took full vengeance. In December, 1833, and January, 1834, Abd el Kader, chiefly through the desertion of his followers, met with serious reverses, and was compelled to conclude peace with the French. He stipulated to exchange prisoners and to protect all European travellers and residents; while the French on their part acknowledged him as an independent prince, and engaged to assist him in maintaining his authority over his own tribes, while he, on the other hand, was not to interfere with those under French protection. Abd el Kader now occupied himself in

the restoration of his influence among the tribes, which had been somewhat shaken by his ill success; he also endeavored to introduce European discipline and tactics among his followers. A powerful desert chief, Moosaa el Sherif, was daring enough to measure arms with Abd el Kader, of whose growing power he was jealous. The emir seized upon his hostilities as a pretence for crossing the Sheliff, the boundary assigned him by the treaty, and soon chastised the insolence of his rival. This expedition confirmed his reputation, and several desert tribes gave in their allegiance, and acknowledged him as their sultan. He made use of his extended power to establish the security of public travelling, to reform the gross abuses of the courts of justice, and to assure the rights of property. In the hope of recruiting his finances, he granted to a Jew named Durand a monopoly of trade and commerce in his dominions, by which he gained an immediate revenue, and interfered with the supplies of the French settlers and garrisons. The French government now took alarm, and recalling Desmichels, whose want of energy they disapproved, appointed General Trézel commandant of Oran, in his stead. An excuse for hostilities was not long wanting. In 1835 the chiefs of the Smailas and of the Douars, who had placed themselves under French protection, besought Trézel's interference against Abd el Kader, who had insisted upon their renouncing the French alliance. General Trézel advanced with his troops towards Mascara. On his march he was surprised by Abd el Kader in the defile of Muley Ismael, and compelled to retire upon Arzew, having lost one gun, his baggage, and nearly 600 killed and wounded. Abd el Kader addressed a justificatory epistle to Count d'Erlon, governor of Algeria, in which he threw all the blame of the recent affair upon General Trézel. At the same time he sent messengers to all the tribes, pointing out the faithlessness and insolence of the French, and calling on them to rally round his standard for mutual protection. Marshal Clausel was now sent to Algiers, as governor, with instructions to crush Abd el Kader at one blow; who, on his part, fully alive to all that was going on, was not slow to meet his enemies. He promulgated the most terrible denunciations against all who should be found siding with the French or supplying them with provisions; the consequence of which was, that the French garrisons and outposts were almost starved, and could not obtain food except by forays, in which friend and foe were treated precisely alike. The emir mustered upwards of 50,000 men, and by his manoeuvres succeeded in postponing the French advance until the wet season. It was not until November that the French arrived at Oran on their march against Mascara. Mostaganem and Arzew were strongly garrisoned, and Clausel advanced into the enemy's country with 18,000 men. After several days of con-

stant fighting, he succeeded in reaching Mascara, on the 6th of December, and avenged himself on Abd el Kader by reducing it to a heap of ruins. This wretched exploit achieved, the French were obliged to retire again. They next took Tlemcen, in January, 1836, and garrisoned it, and then returned to Oran. But although they defeated the Kabyles in a battle, the indefatigable emir harassed their retreat, which they only effected after severe losses. This murderous and savage mode of warfare, which was nothing better than a system of forays, was without practical result to the French. As soon as the army had retired, the inhabitants of Tlemcen rose upon the French garrison, their convoys were cut off, and General d'Arlanges, the second in command, was ordered to establish a fortified camp on the Tafna, for the purpose of covering Tlemcen and keeping open the communications between that post and the districts favorable to the French. He advanced with 8,000 men by land, while another division of 4,000 was despatched by sea. When about five miles from Tlemcen, he was attacked by Abd el Kader and 10,000 Arabs, and driven back on his fortified camp, where he was shut up and compelled to remain until relieved by Bugeaud at the head of 4,000 men. Abd el Kader disseminated reports of the ruin of the French cause, and by these means roused the Arab tribes to such a pitch of fanaticism, that they rose en masse against their detested invaders. General Bugeaud, now assumed the command. His uncompromising character infused new spirit into the French army. Abd el Kader was repulsed, and the garrison of Tlemcen, which was on the brink of starvation, relieved. Abd el Kader now threatened the French fortified camp on the Tafna, and Bugeaud accepting his challenge, quitted his entrenchments, and totally defeated him, on the 6th of July, 1836. This defeat would have been, however, insufficient to check the intrepid Arab, had not a revolt of the powerful tribe of the Flita occurred at the same time, to chastise whom he was obliged to retire. Abd el Kader was soon again in arms, and Clausel, who was fully occupied at Constantine, sent Bugeaud a second time into the province of Oran in 1837, at the head of 12,000 men. The French commander issued proclamations, announcing his intention to march into the Arab districts at the head of such a force as must crush all resistance, but at the same time offered peace to those tribes which should come in and make their submission. These proclamations had such an effect that Abd el Kader was compelled to sue for peace; and a personal conference having been held between himself and Bugeaud, an armistice was concluded on the 7th of May, 1837, by which he acknowledged the sovereignty of France, and agreed to surrender the provinces of Oran and to confine himself to Koteah, Medeah, and Tlemcen. The truce was but a hollow one; it was not in the Arab's nature to

tolerate the presence of the French usurpers on his native soil, and accordingly, in 1839, the French intercepted letters addressed by him to the tribes, instigating them to another holy war against the accursed infidel. Several desperate engagements were fought; but victory declared for neither party. The evil genius of Abd el Kader, General Bugeaud, was again sent against him, and in May, 1841, he vanquished the Arab chief at every point, seized his headquarters, Tokedempt and Mascara. In the following year Bugeaud followed up his success, and having seized Tlemcen and the strong fortress of Tafna, he forced Abd el Kader to quit the field and take refuge in the states of the emperor of Morocco. He was for the second time in the depth of poverty; but ever fertile in resources, he persuaded the emperor of Morocco to join him against the French, and Abd el Kader executed one of the most daring and destructive razzias that the French and their allies had suffered, and which elicited the expression from Bugeaud, that Abd el Kader was absolutely unconquerable. This drew down upon the emperor the vengeance of the French, who bombarded Tangier and Mogadore. The emperor levied an army, but was easily defeated in the battle of Isly, in which Abd el Kader and his Arabs did all the work of the day. The emperor now begged for peace, which was granted on condition of his expelling his troublesome guest. The emir, however, took refuge with the tribes of the Rif, whose mountainous and inaccessible country enabled them to laugh to scorn both Moor and Frenchman. From this retreat he carried on his schemes for the subjugation of Morocco itself, and uniting the whole north of Africa against the French. The emperor of Morocco, Abderrahman, though too supine to take action himself, was roused to a sense of his danger by French emissaries, and at length entered the field against Abd el Kader. He commenced his campaign by making a terrible example of various revolted tribes, which so alarmed those who had declared for Abd el Kader, that all except his own again abandoned him. The emperor gave him the option of submission or departure from his territories into the desert; but he treated these overtures with contempt, and took the initiative in a night attack on the Moorish camp, in which he was partially successful; but the Moors having rallied, he was repulsed. He managed, however, to save the deira, the headquarters of his tribe, and retiring within the French frontier, he sent a message to General Lamoricière for surgical assistance for his wounded, designing to escape himself into the desert. The French general was, however, too acute to permit this. He cut off his retreat by a body of horse, and Abd el Kader seeing the hopelessness of a further contest, offered to surrender on condition that he should be sent to Egypt or St. Jean d'Acre. This capitulation was assented to and ratified by the Duke d'Aumale, Governor-Gen-

eral of Algiers; but the national faith thus pledged was broken. Abd el Kader was taken to France where he arrived Jan. 29, 1848. Neither Louis Philippe nor the republican government had sufficient magnanimity to release him, and it was reserved for Louis Napoleon to redeem the national honor. His great captive was released in December, 1853, on condition that he should not return to Algiers, nor again take up arms against France. In the beginning of 1853, he departed for Broussa in Asia Minor, and has ever since continued on the most friendly terms with the French imperial government. On the destruction of Broussa by an earthquake in 1855, he removed his residence to Constantinople, and in the autumn of that year made a brief visit to Paris during the great industrial Exposition. His personal appearance is thus described: "His stature is above the middle height, his head beautifully shaped, and his black beard and hair form a striking contrast to his garments of white wool; his hands are of the most graceful form, and white as a woman's, and his whole aspect is one of combined grace and majesty." Abd el Kader has been made the subject of a poem by Lord Maidstone.

ABD EL KOOREE, or Palinurus shoal, a dangerous rock and coral reef off the S. E. coast of Arabia, in lat. $14^{\circ} 54' 50''$ N. lon. $50^{\circ} 45' 20''$ E., extending 1,850 yards from N. N. E. to S. S. W., with a breadth of 800 to 600 yards.

ABD EL MALEK BEN MERWAN, A. D. 685-705, fifth caliph of Damascus, of the family of the Ommyiades, surnamed "the Flintskinner," on account of his avarice. He carried on the war against Abdallah ben Zobaïr, sultan of Mecca, and defeated him; he also overcame the Persian caliphate, and drove out the invaders. He carried on an active war with the Greek emperor, Justinian II., in which he was compelled to sue for peace, which was granted on condition of his paying an annual tribute for ten years. The peace did not last long, and Abd el Malek not only refused tribute, but sent his lieutenant Hassan against the Roman provinces in Africa, who rapidly overran them, and extended the Moslem power to Carthage.

ABD EL MALEK BEN OMAR, one of the viziers of caliph Abderrahman, in the eighth century. He is the king Marsilius of Ariosto, and of the ancient romances of chivalry. In the internal dissensions of the Moorish kingdom in Spain, this valiant chieftain sustained the claims of the family of the Ommyiades to the throne of Cordova. He repulsed the desperate attempts of the African Moors to establish the power of their caliphs over Spain, and slew his son with his own hand for having shown cowardice in the field. He was governor of Saragossa and East Spain at the time of Charlemagne's famous invasion of that country.

ABD EL MOTTALLIB, grandfather of Mohammed, born A. D. 497, died 579. He succeeded his uncle in the important offices of distributing the provisions to pilgrims who

visited the holy Caaba, and in attending to the waters of the city. In this capacity he rendered the public service of re-opening the well Zemzem, which had been filled up, and also of discovering the holy relics of the temple which had been thrown aside and lost in an invasion of Mecca by a hostile tribe. The influence thus acquired eventually placed him at the head of his tribe, the Koreishites. The Abyssinians having threatened Mecca at this period, during an expedition known among the Arabic writers as the wars of the Elephant, the inhabitants were so alarmed, that under the guidance of Abd el Mottalib, they withdrew to the mountains. An epidemic, or as the Arabs describe it, a miracle swept off the Abyssinian army. Abd el Mottalib returned. The death of his son and the posthumous birth of his grandson, Mohammed, obliged him to take charge of the child's education, and of his person at the death of his mother. Abd el Mottalib died at the age of 80. He had nineteen children; among them Abu Taleb, Zobeir, and Aobas, names of renown in Mohammedan history.

ABD EL MUMEN, first caliph of the Mohammedan sect of Almohades, A. D. 1180. After an exterminating warfare on the plains of Morocco and Northern Africa with his rivals, the Almoravides, Abd el Mumen succeeded in crushing them. He passed over into Spain and made himself master of the Moorish throne. He was making preparations for a holy war against the Christians, when he died A. D. 1168, in the 68d year of his age.

ABD EL WAHAB, founder of the Mohammedan sect of Wahabees or Wahabites, born A. D. 1692, died 1787. He was born of a poor family, at Hilleh on the Euphrates, near the ruins of Babylon, and having travelled through Persia, began to teach religious doctrines at Bagdad and Bassorah. He did not admit that the Koran was of divine inspiration; he rejected the meditation of saints, and denied the obligation of vows in time of danger. His disciples were highly intolerant, and were continually involved in feuds and wars with neighboring tribes. They were suppressed by Mehemet Ali, though their doctrines still live in a part of Arabia.

ABDERA, an ancient city of Thrace, on the banks of the river Nessus. It was a free city, but subsequently fell under the power of the Romans. Its inhabitants were proverbial for ignorance and stupidity, from which ill repute they were not saved by the lustre that Democritus and Protagoras threw around the name of the town. La Fontaine has pleasantly used this fact in his fable of "Democritus and the Abderites," and Wieland also refers to it in one of his satirical compositions. Coins of this city are numerous.

ABDERRAHMAN, seventh Arab governor of Spain, elected by the unanimous voice of the Arab generals, at the siege of Toulouse, A. D. 721. Their previous general having been killed, the Moors retreated under the conduct of Abderrahman. He underwent the usual re-

verses of Mohammedan rulers, but having regained his power, he renewed the design of the conquest of France, and penetrated that kingdom as far as the city of Bordeaux, which he took by assault. The renowned warrior, Charles Martel, encountered the Panim bands in the province of Poitou, and effectually routed them in a desperately-fought battle, in which the Moorish general was slain.

ABDERRAHMAN I., surnamed the Wise, born at Damascus, A. D. 731, was the first caliph of the family of the Ommytades in Spain. After the massacre of his family, he retired to Mauritania, where he remained in privacy until he was recalled to Spain by a deputation of friends, who were tired of the anarchy and civil war to which contending factions had made their country a prey. Abderrahman responded to their call, and, with a handful of relatives, landed at Abmunecar, and his adherents poured in so rapidly that he soon found himself at the head of a large army A. D. 755. He entered Seville, and was acknowledged as sovereign. Next he advanced against Yussuf el Feri, the most powerful of the rival emirs, whose army, though of greatly superior numbers, he entirely defeated, and thereby firmly established himself on the throne of Cordova. It was during these internal dissensions in Spain that the Mohammedans were finally driven out of France, and forced to recross the Pyrenees A. D. 760. Abderrahman was not left to reign in peace. The Eastern caliphs, who always kept up the idea of maintaining the right of spiritual and temporal rule over the Spanish Moors, anathematized Abderrahman, and despatched two expeditions against him. But the capacity of the prince, and the conduct and bravery of his general, Abd el Malek, defeated these efforts. The kingdom of Cordova was at peace when Charlemagne crossed the Pyrenees, and made that brilliant but fruitless expedition which furnished an episode to history, and has been immortalized by the heroic muse of Ariosto. Abderrahman having conquered or conciliated all parties, turned his attention to the arts of peace. He built the magnificent mosque of Cordova, designed by himself, at which he is said to have labored an hour a day with his own hands. He planted the first palm tree in Cordova, the stock from which all those now in Spain are descended. He built several fine mosques and other public edifices, and gave encouragement to the arts and sciences. He died A. D. 787.

ABDERRAHMAN III., called the Great, ascended the throne A. D. 912, at the age of 21. He was involved in constant warfare. Intestine commotions, Christian invaders, and the ravages of African corsairs, occupied nearly his whole life. He not only met these troubles successfully, but managed to carry his conquering arms into Morocco, and raised his kingdom to its highest pitch of glory. The close of his long reign of 49 years was the most brilliant epoch of Moorish domination in Spain. Arts, sol-

ences, and literature flourished, the kingdom was at peace, and he was even able to aid a Christian prince, Sancho, in recovering his throne. He died A. D. 961.

ABDERRAHMAN, reigning sultan of Morocco, born 1778, succeeded to the throne 1828, on the death of his uncle, Muley Suleiman. At his accession the practice of paying tribute to the Barbary pirates by independent Christian states had not ceased. But Abderrahman was compelled by the Austrians to abandon the compact. In 1844, the prolonged resistance of Abd el Kader to the French invasion involved Morocco in war with France, and Mogadore and Tangier were bombarded by a French fleet. The contest was terminated by the battle of Isly, in which, despite the boasting of French bulletins, the Moors made but little resistance. Abderrahman was now compelled to turn his arms upon his too powerful subject, and, having collected a large army, he attacked Abd el Kader, and compelled him to retire into the French territory. Abderrahman's eldest son is Sidi Mahammed, born 1808.

ABDIAS, of Babylon, the supposititious author of a book called *Historia Certaminis Apostolici*, in which he asserted that he had seen Christ, that he was one of the 70 disciples, that he had witnessed the deaths of several of the apostles, and that he accompanied St. Simon and St. Jude into Persia, by whom he was made the first bishop of Babylon. This book, published at Basel in 1551, has passed through several editions.

ABDIATION, the abandonment of a throne by a crowned head, was of rare occurrence in ancient times, and took place generally under circumstances of compulsory character. Diocletian and Maximian are the best known cases in antiquity. Among the moderns we have Charles V. of Spain and Germany (1556), Christina of Sweden (1654); in Spain, Philip V. (1724), and Charles IV. (1808); in Savoy and Sardinia, Amadeus I. (1440), Victor Amadeus II. (1780), Victor Emmanuel I. (1821), and Carlo Alberto (1849); in France, Charles X. (1830), and Louis Philippe (1848); in Holland, William I. (1840); in Bavaria, Louis Charles (1848); in Austria, Ferdinand (1848). The motives for this change of condition have been, in the most recent instances, revolutionary disturbances; in earlier cases, weariness and satiety of power, a sense of the hollowness of courts, and a temporary disgust of worldly greatness. Diocletian and William of Holland, perhaps, least regretted the change. The Roman Emperor boasted of his cabbage garden. The Dutch king married the woman of his affections, for whose sake he had renounced a throne. Charles V., from his monkish cell directed the politics of Europe. Philip V. re-ascended the throne. Victor Amadeus wished to do so, and expiated his attempt in a prison. Victor Emmanuel declined it when he had the opportunity. Abdication, voluntary or compulsory, is considered by jurists as a personal

act which in nowise affects the right of succession.

ABDIE, a parish in Fifeshire, Scotland, in which the battle of Blackearnside, between the Scots under Wallace, and the English, was fought.

ABDIESUS, a deacon and martyr, who with many others perished in the great persecution of the Christians in Persia by King Sapor. His anniversary is the 22d of April.

ABDOMEN, THE BELLY (from the Latin *abdo*, to hide, because it hides or conceals its contents). The human body is divided into three portions, head, trunk, and limbs. The trunk forms two distinct cavities, the chest and the abdomen, each of which is completely filled with viscera, or what are termed internal organs. The chest contains the heart and lungs; the abdomen contains the liver and digestive organs, and also the genito-urinary organs. The chest and the abdomen are separated from each other by a transverse musculo-fibrous membrane called the diaphragm, a name derived from a Greek word signifying to divide. The diaphragm is placed transversely across the trunk about midway, and thus divides it into very nearly equal parts. It is a fibrous membrane with muscular attachments, and one of the main organs of respiration. It is perforated near the spinal column to give passage to the cesophagus and to the leading blood-vessels as they proceed from above downwards; its chief function consists in moving upwards and downwards with the respiratory expansions and contractions of the thorax, and thus alternately increasing and diminishing the relative capacity of the chest and the abdomen. It also serves as a basis of support and attachment for the heart and lungs above, as well as for the liver and the stomach below. The inner walls of the abdomen are lined throughout, by a thin, transparent membrane, firm and dense in structure, termed the "peritoneum," from a Greek word signifying to extend around. This membrane not only lines the inner walls of the abdomen, but extends over all the viscera contained in the abdomen, and, as it were, sustains them in its strong and numerous double folds. The peritoneum may be compared to a large sheet, first doubled, so that its inner surfaces may be moistened with a perpetual kind of dew, while its external surfaces enfold a number of distinct and convoluted organs, the portions not engaged in this envelopment of organs being stretched as a lining membrane on the inner walls of the abdomen. By this contrivance, the separate organs engaged within the double folds of the peritoneum can move with freedom near each other, as the friction is deadened by the moisture on the inner and contiguous surfaces of the enfolding membrane. As many important organs are contained in the abdomen, it has been divided into several regions, indicating the seat of the organs within the cavity. Three longitudinal divisions are first made from the breast to the pelvis, and then three trans-

verse similar divisions, from side to side. This gives a central and two lateral portions in the upper, the middle, and the lower divisions. The central regions are the epigastric above, the umbilical in the middle, and the hypogastric below. The lateral regions corresponding with the epigastric, are the right and left hypochondriac; those on each side of the umbilical, are the right and left lumbar regions; and those on either side of the lower central or hypogastric region, are termed the right and left iliac regions. The hypogastric being immediately below the umbilical region, and therefore rather far below the epigastric, is often called more appropriately the region of the pubis. Without describing the organs situated in each of these regions, we may state that an exact knowledge of their respective volumes and locations in a healthy state, gives the physician great facility in detecting any deviation from the normal size and position which may result from internal disease, in any one or more of the viscera contained within the cavity of the abdomen, if cavity can be applied to an internal space which is always more or less completely filled. By simple inspection, manual examination, and percussion, it is generally easy for an experienced physician to ascertain the state of any organ in the chest or abdomen, notwithstanding its concealment from view by the external walls of the trunk. There are organs in the body placed beyond the reach of any external examination; and the diseases of such organs can only be ascertained by general symptoms, as they afford no outward sign by which the inward state can be distinguished. The abdomen, however, is one of the least obscure regions of the body in this respect. Its walls are soft and yielding; some of its most important viscera lie immediately beneath the surface, and though they cannot be directly seen, they can be felt; moreover, if their volume be enlarged, it can easily be discovered through the altered relative positions and proportions of the parts beneath the walls, and the consequent distension of the walls themselves; and this is an important means of diagnosis in diseases of the viscera abdominal.

ABDUCTION, the unlawful taking away by force of the person of another. It is deemed by the laws of every civilized country a crime of great magnitude, and is visited with severe penalties. Abduction is not always accomplished by brute violence, but frequently by fraud and persuasion, especially in the abduction of children; but in all such cases the law supposes force. The abduction of children is not, indeed, now a common offence, but it is only within the last century that it has become so rare. Until that period, the records of crime in England are laden with cases of children carried away by relatives ambitious of becoming possessed of their property. There are few families in England, and we might almost say, none of any antiquity or distinction in the north of Scotland, or in Ireland, where, from the more

wild and uncivilized character of the people, these barbarous customs found their strongest home, whose annals do not hold some romantic narrative of the abduction of some young lady or lord entitled to the hereditary estates. The abundance of story whose main plot rests on some such incident, sufficiently attests the frequency of the crime in those times; and the beautiful tale of the abduction of the young laird of Ellangowan, in Scott's novel of *Guy Mannering*, is known to have been taken from real life. Modern child abduction is entirely confined to instances such as that recently of the Mormon, Mrs. Maclean, who was desirous of carrying her children into the land of Utah; or of mothers, who, having parted with their husbands, either from guilt, or domestic or religious differences, still retain that love of their offspring natural to all mothers, and desire to obtain them. In all such instances, abduction is divested of its more heinous features, and is rather a subject for the law of equity than the criminal law. Neither is the abduction of wives a prevalent practice in our times. Few Bothwells are to be found now; in most instances where ladies desert their lords, the ladies are the persuading, or at least the consenting party. In this latter case, the husband is entitled to damages in proportion to the loss sustained. Where personal violence has been used, the crime is of a graver character, and subjects the perpetrator to imprisonment for years, at the pleasure of the court. That branch of the science of abduction, which consists in the carrying away of unmarried women generally, and heiresses in particular, is, however, decidedly the most distinguished, being able to boast of an older pedigree and of a longer duration than either of its sister branches. The abduction of the Sabine virgins by the Roman youths, carries it back to the most mysterious and misty period of the early history of Rome, and from that time it has continued to flourish down to the present day. Among every nation of Europe, with the exception of the Turks, among whom women are a marketable affair, the practice of this species of abduction has prevailed and is prevalent. In the days of knight-hood, when chivalry, that nurse of manly sentiment and so forth, prevailed, abducting exploits had at least the incentive of romantic love, but in our degenerate days of calculation and economy, they have chiefly been instigated by more material motives, a fat fortune being a more powerful talisman than the sweetest smile. In the rural portions of the United Kingdom of Great Britain and Ireland, it is still not unfrequent, where a girl is possessed of comparative wealth in her own right, or likely to inherit it from her parents, for some neighboring aspirant to arm his relatives, descend upon the homestead, and carry away the coveted heiress, holding her in custody until her parents or guardians submit. Some severe punishment recently inflicted in England has, however, had the effect of diminishing its frequency there. But in Ire-

land it still retains something of its ancient prevalence. Scarcely a month passes in the southern and western districts of that enthusiastic country without the parish being enlivened by some abducting feat, in which often the gentry play a leading part, and in the riot and dangers of which the Irish peasant absolutely revels and rejoices. Oftentimes these abductions give birth to great family and faction fights, one party battling for the recovery, and the other for the retention of the wearer of the golden fleece, but recourse is never had to law, that being deemed mean and cowardly in the extreme. The chastity of the maiden is in such cases never soiled. She is merely held in close durance, until, after protracted negotiation, in which a diplomacy worthy of Nesselrode or Talleyrand is frequently displayed, an arrangement mutually and monetarily satisfactory is reached. The negotiations are usually crowned with an abundant banquet of whiskey and potatoes. Of late, however, the entire onus of preserving untarnished the national prestige has been left to the lower classes, and the fame of the Irish gentry in this line would have probably faded away, had not a Mr. Carden, a squire from the celebrated fighting county of Tipperary, stepped forward to relieve his caste from the imputation of degeneracy. The story is fresh, and worthy of narration as an example of the usual routine in such cases. A Miss Arbuthnot, a lady of considerable wealth, was staying on a visit with her sister, who was married to a Mr. Gough, the son and heir of Lord Gough, the hero of Sobraon, who was "a Tipperary boy." Her fortune was large, and her lovers consequently legion. Among the most ardent of the throng was a Mr. John Carden, an Irish squire of very little brains and a good deal of land, which he desired to increase. The lady, however, loved wisely, but not too well. Thus foiled, and emulous of the traditions of his country and his house, this gallant Irishman armed a large band of ruffians with pistols, skull-crackers, and chloroform, and planting them near a country church, where the lady usually attended on the Sabbath day, made a descent upon her carriage as she quitted service, and attempted to carry her away. The daughter of Albion, however, made vigorous defence, and in fact held bravely her own. Aided by two faithful attendants and one or two valiant female volunteers, she succeeded in putting her assailants to a complete rout. The perpetrator of the outrage narrowly escaped transportation, and was sentenced to imprisonment and hard labor.—In the law of England, the abduction of an heiress is regarded as a felony of a high degree of criminality, and has been made the subject of severe penal enactments. So recently as the reign of George IV., it was made punishable with death; but during the reign of the present queen, this has been reduced to transportation. A similar punishment has been practically inflicted in Scotland, where there is no legislative provision on the subject.

In case of abduction, the usual rule, that a wife shall not give evidence against her husband, is not observed. Under the Roman law, the forcible carrying away of a woman was called the *crimen raptus*, and was a capital offence, though not attended with the violation of her person.

ABDUL HAMET, sultan of Turkey, was the youngest son of Achmet III. On the death of his brother, Mustapha III., Jan. 21, 1774, he was taken from the seraglio in which he had passed forty-four years of imprisonment, and made sultan. Abdul Hamet endeavored to make head against the encroachments of the Russians, and assembled an army of 400,000 men on the banks of the Danube. The grand vizier Moussa-Oglu took the command, but he was beaten at the first onset. The division in the camp at Shumla mutinied, and Abdul Hamet was obliged to sign the celebrated treaty of Kootshook Kanardji, July 21, 1774, by which the Tartars of the Crimea were delivered from the Turkish yoke. This illusory peace did not, however, satisfy the Russians. Catharine directed a fleet to be built on the Black sea, and founded the city of Kherson. Prussia now alarmed at the increasing power of her dangerous neighbor, pointed out the risks the Turks were incurring; and these representations were so effective at the Porte, that a fleet was sent into the Black sea to blockade Kherson. Suwarrow was sent against the Turks and won the desperate battle of Kinburn. Moldavia was now occupied by Austria; but the Turks, roused to desperation, boldly attacked the imperialists, and drove them back; and the grand vizier Yusuf laid waste the banat of Temesvar with fire and sword. The battle of Ocza-kow, however, blighted the hopes of the Turks. Abdul Hamet, who from his early habits of retirement was ill-fitted for the throne, died on the 7th April, 1789, and was succeeded by his nephew Selim III.

ABDUL HAMET BEY, is the oriental title of a bold French traveller and adventurer, named Courret, born in Huningue in 1812. In 1834 he went up the Nile into Abyssinia, returning to Egypt along the west coast of the Red sea. Embracing Moslemism, he made a pilgrimage to Mecca and travelled through the greater part of Arabia. In 1846 he visited Persia, but falling under the suspicions of the government was obliged to flee, and returned to France, whence he shortly afterward set out to visit Tombuctoo.

ABDUL MEDJID, the reigning sultan of the Turkish Empire, was born May 6, 1823, and acceded to the throne on the death of his father Mahmoud II., July 1, 1839, at the early age of seventeen. Having been educated in the seclusion of the imperial palace, his weak and almost feminine character, his kind-hearted disposition, his love of pleasure, his inexperience and want of knowledge of human nature, seemed to render him utterly unable to cope with the overpowering difficulties which, at the period of his accession, surrounded the throne of the

Fadiahah, or of energetically continuing the work of regeneration begun by the iron hand of his father. Rebellion and treason endangered the integrity of the empire and the very existence of the Osman dynasty. Mehemet Ali, pasha of Egypt, having a second time risen against the Turkish supremacy, his son Ibrahim had routed the Turkish army near Nezib, June 24, 1839, and was on his march against the capital of the empire, where a strong party secretly conspired to satisfy the lifelong ambition of Mehemet Ali by elevating him to the imperial throne. At the same time the Capudan-pasha or Grand Admiral, believing the fortunes of his sovereign on the wane, vilely betrayed his trust by surrendering the entire fleet to Mehemet Ali, June 14. Such was the condition of the empire when the youthful Abdul Medjid was called upon to administer it. It was obvious that he could not save it by his own efforts, even if he had been a man of the sternest energy and vast intellect. At no former period had it become so apparent, that the existence of the Turkish empire was based merely upon the mutual jealousies of European rulers. The intervention of England and the German powers checked at once the ambitious designs of Mehemet Ali. By the treaties of July 15, 1840, and July 18, 1841, Turkey was formally admitted into the political system of Europe, thus making the "European equilibrium" dependent upon the integrity and independence of the Turkish empire. The personal share of Abdul Medjid in all these proceedings was very small indeed. During the earlier years of his reign he was scarcely more than a puppet in the hands of his crafty mother, or of the stern and fierce Khosrew Pasha, or of Reshid Pasha, the clever pupil of western diplomacy. But, although unable to originate a vigorous policy of his own, Abdul Medjid's intellect gradually became at least keen enough to discern the aims and purposes of his immediate advisers, while his kind and benevolent disposition made him always anxious to do justice and to promote the welfare of his subjects. His was not the almost horrible energy of Mahmoud II., who, in order to regenerate Turkey, ploughed her up with sword and bayonet and irrigated her with torrents of blood. Desirous of continuing the reforms initiated by his father, and of assimilating the institutions of Turkey to those of other European nations, Abdul Medjid yet lacked the strength and perseverance necessary to overcome the obstacles which religious fanaticism, national prejudice, and the unwillingness of officials, interposed in his way. Besides, in failing to discriminate between the outward form and the substance of civilized institutions, he committed the same error which in many instances had frustrated even the efforts of his more energetic and unscrupulous predecessor. Never dreaming that the legal and political institutions of any nation must have a natural growth out of the national character, customs, and feelings, he endeavored to reconstruct Tur-

key by means of decrees and manifestoes. But in vain. Neither did he succeed in eradicating the mutual hatred of the different nationalities within the empire, nor in supplanting the oriental indolence and fatalism of the great mass of his subjects by that stirring activity and restlessness which, perhaps, are the fundamental condition of a healthy political development. Thus, most of his reforms remained a dead letter, or, where an effort was made to enforce them, bloody insurrections were the only result. On Nov. 8, 1839, the youthful sultan, acting under the advice of Reshid Pasha, convoked all the grand officers of the empire, the sheiks of the dervises, the three patriarchs of the Christian sects, the three High-rabbis of the Jews, the foreign diplomats, the Ulemas, Mol-laha, the trustees of all corporations at Constantinople and citizens generally, around the pavilion of Gülhané in the imperial park, and there promulgated the *Hattisheriff* or Fundamental Law, a bill of rights, intended to be the basis of a political reconstruction upon the pattern of Western Europe. Equality before the law was guaranteed to all subjects of the sultan without distinction of creed or nationality; a fair and equitable mode of taxation was to be introduced instead of the arbitrary levies of rapacious governors; a new and just system of conscription was also promised. But little did these promises avail against the prejudice of the masses and the opposition of powerful parties at the imperial court. More than once the *Hattisheriff* was confirmed and repeated in new decrees; nay, in 1845 the sultan went so far as to call a kind of congress, consisting of representatives from different provinces of the empire. Still, up to the outbreak of the Russian war there was scarcely any prospect that the resistance of the provinces against the intended reforms would be overcome. At the capital some successes at least were obtained. A Board of Education was instituted in 1845, and a system of free public schools established in 1846. (The number of free schools in Constantinople at the present time is set down at 896, and the number of pupils at 22,700. Besides, there are half a dozen colleges, as well as military, medical, and agricultural academies.) When the Russian war had, for the time being, revived a certain feeling of a common nationality among the Turkish people, another effort was made to realize the promises of the *Hattisheriff*. On February 18, 1856, the *Hat-hu-mayrum* was published, being the draught of a very liberal constitution allowing even some sort of popular representation. While from 1840 to 1858 almost every year of Abdul Medjid's reign was marked by insurrections in one province or another, the court was the theatre of incessant intrigues of the representatives of the great powers. Among all these intrigues the position of the sultan was scarcely more honorable or important than that of a nominally sovereign king in the East Indies. For several years he led a dissolute life, espe-

dially while his mother's favorite, Riza Pasha, remained in power (up to 1845). Since then he would appear to have mended his ways in some degree. By studying the French language, mathematics, history, and music, he improved his education which had been sadly neglected in early youth. European customs and fashions became more and more prevalent at court, concerts and Italian opera were established permanently, and in 1854 the sultan, the "Supreme father of the faithful," even went to a ball. Now, this kind of reform would seem to bear a striking resemblance to that effected by Czar Peter I. in Russia; but then it must be remembered that Peter effected something beside a mere change in costume and furniture, while the Europeanization of the Turkish courtiers is a very superficial and shallow affair indeed, in many cases scarcely any thing else than a cumulation of European and oriental vices. Abdul Medjid, intent as he may be on becoming civilized, has, happily, not yet learned the art practised by European kings and diplomats, of making light of honorable obligations and sacred duties. When, in 1849, the Hungarian patriots, crushed by the armies of their perjured king and of the Czar, sought refuge on Turkish soil, Abdul Medjid would rather run the risk of a formidable war, than betray those who had confided in the sacredness of hospitality as taught by Mohammed. This firm vindication of the behests of honor and religion is the brightest spot in Abdul Medjid's career, and has obtained for him golden opinions from the people of Europe and America. During the trials of the Russian war Abdul Medjid appears to have shown a good deal of energy and firmness, but generally his personal views and volitions have had very little influence upon the course of events. He has not mettle enough to imprint the stamp of his individuality upon the policy of his government. The physique of Abdul Medjid corresponds exactly to his mild disposition and phlegmatic temper. It is thus described: "Abdul Medjid is of medium stature, rather delicately formed. His eyes are dark and heavy in expression, with lofty and arched eyebrows; his beard and mustaches of a dark auburn hue are carefully trimmed, and completely conceal the expression of his lower features. His complexion is very pallid, and his whole air decidedly *nonchalant*." The sultan has five wives, being two less than the law allows him. He has nine legitimate children, two girls and seven boys, none of whom, however, will succeed him while his brother Aziz Effendi is living, for the law requires that the oldest living male member of the imperial family shall succeed to the throne.

ABDY, MIRA, born in London in 1806, was niece of Horace and James Smith, the authors of "Rejected Addresses," and in whose society, from an early age, she was familiarized with literature and authors. She was educated at home, by her mother. Long before she entered her teens she had written verses

principally of a lively character, probably in imitation of her uncle's amusing compositions. About the age of twenty she married the Rev. John Channing Abdy, rector of the large parish of St. John, Southwark. As the wife of a metropolitan clergyman, in a parish densely populated by the working classes, many of whom were poor, Mrs. Abdy's time was greatly occupied. Encouraged by her husband, she occasionally wrote poetical pieces, and made her first appearance in print about 1828, in the "New Monthly Magazine," then edited by Thomas Campbell. She continued to write, in prose and verse, under the initials "M. A.," until Campbell commenced the "Metropolitan Magazine," in which her compositions appeared under her own name. The Annuals were in full bloom then, and for several years later, and Mrs. Abdy largely contributed to most of them. Her verses, though seldom meriting the highest praise, are easy, flowing, and graceful, often resembling the felicitous lyrics of Præd, and sometimes of a grave and more thoughtful character. She writes with the readiness of an improvisatrice, and her short prose tales are thrown off with equal ease. She obtained the first prize a few years ago for the best poem (it is her longest), in aid of English governesses. Her poems, collected into five volumes, have been printed, for private circulation only. Her correspondence, which chiefly touches on literary topics, is lively and graceful, with snatches of criticism on books and authors. Mrs. Abdy, who resides in London, was early left a widow, with an only son, destined like his father and grandfather for the church, and she has superintended his education with judgment and care.

ABECEDARIANS, a sect appearing in the 16th century, and led by one Storck, formerly a disciple of Luther. They held that without the aid of study the Holy Spirit would convey directly to the understanding a knowledge of the Scriptures, and that, therefore, it was better not to know how to read. Carlostadt, a Wittenberg divine, and at one period of his life a bitter antagonist of Luther, is said to have countenanced the Abecedarians by tearing off his doctor's gown and burning it.

A' BECKETT, GILBERT ABBOTT, English author. He was one of three brothers, the sons of a London attorney, and was himself called to the English bar in 1841. He was a contributor to both the "London Times" and "Daily News," and was special correspondent to the "Times" in a celebrated poor law inquiry, in which he displayed great judgment. He was one of the earliest contributors to Punch, and wrote the "Comic Blackstone" and "Comic Histories of England and Rome." He was appointed one of the police magistrates of London. On his death, in 1856, the queen, on the recommendation of Lord Palmerston, granted his widow a pension of \$500 a year.

ABEEL, DAVID, D. D., a missionary of the Dutch Reformed Church to the East, was born

at New Brunswick, N. J., June 12, 1804, and died at the Manor House in Albany, Sept. 4, 1846. At the age of 16 he became deeply interested in religion, and determined to devote himself to the ministry. He studied theology at the seminary in New Brunswick, and at the end of three years, in 1826, was licensed to preach. After laboring in that capacity for more than two years at the village of Athens, N. Y., his health gave way, and he was obliged to seek its restoration by travel. He had for some time been interested in the subject of foreign missions, and finally resolved to enlist in the cause himself. In Oct., 1829, he sailed for Canton, as a chaplain of the Seamen's Friend Society; but at the end of a year's labor placed himself under the direction of the American Board. He visited Java, Singapore, and Siam, studying the Chinese tongue, and laboring with much success, when his health failed him entirely, and he returned home in 1833, by way of England, visiting Holland, France, and Switzerland, at the same time, and everywhere urging the claims of the heathen. He also assisted in England in forming the Society for promoting Female Education in the East. In America he wrote a description of his life in China and the adjacent countries, and a work entitled "The Claims of the World to the Gospel." In 1838 he again returned to Canton. The "opium war" preventing his usefulness there, he visited Malacca, Borneo, and other places, and settled at Kolongsoo. Once more his health gave way, and he returned in 1845, to die within the year. Dr. Abael was a sincere lover of his species. He was not an original thinker, but had great practical judgment and good sense, and a persevering energy which accomplished wonders.

ABEGG, JUL. FRIEDR. HEINE, German jurist, born at Erlangen, 1796. In 1818 he received his legal doctorate, and in 1820 commenced delivering lectures at Königsberg. In 1824 he was made professor of law, in which capacity, in 1836, he was attached to the university at Breslau. In 1846 he was chosen by the legal faculty at Breslau, delegate to the Prussian national synod. — BRUNO ERHARD, lawyer and politician, cousin of the former, born at Elbing, Jan. 17, 1803, died in Berlin, Dec. 16, 1848. In 1833 he was appointed provisional police president at Königsberg. He was a member of the deputation sent in 1848 from Breslau and Liegnitz to the king at Berlin, and was afterwards sent to the Frankfort parliament. At the time of his death he was a member of the Prussian national assembly.

ABEILLE, JOH. CHRISTIAN LUDWIG, musician and composer, born at Baireuth, Feb. 20, 1761, died 1832, was educated at Stuttgart, and in 1782 was chosen member of the Württemberg royal chapel. After Zumsteeg's death, he succeeded him as musical director, and afterwards became court organist.

ABEKEN, BERNHARD RUDOLPH, professor and rector in the college at Osnabrück, where

he was born Dec. 1, 1780. In 1808 he accepted the tutorship of Schiller's sons. In 1815 he received a call to the college at Osnabrück, of which institution he finally became the director. — WILHELM LUDWIG ALBRECHT RUDOLPH, son of the former, born April 30, 1813, died Jan. 29, 1843. He received in 1836 the degree of doctor of philosophy at Göttingen. Assisted by the crown prince of Hanover, he proceeded to Rome, where he delivered lectures on archæology in the Italian language. In 1842 he returned to Germany, where he resided, in Munich, until his death.

ABEL, the second son of Adam. He was a shepherd, and was slain by his brother Cain, from envy. It has been maintained by some fathers of the church, that Abel never married, hence the sect of Abelites.

ABEL, CHARLES FREDERIC, a German musician born at Köthen, 1725, died in London, 1787. He was a pupil of Sebastian Bach. He was a player in the orchestra of Augustus of Saxony, king of Poland, and on his own instrument, the viola di gamba, a six-stringed violoncello no longer in use, he had no rival. In 1758 he went to England and became chapelmaster of the queen Charlotte. The galaxy of great musicians that have appeared since Abel, have thrown his compositions into the shade. His style was rather remarkable for its melody and harmony, than for any scientific or elaborate combination.

ABEL, CLARKE, born 1780, died at Calcutta, Dec. 26, 1826. He was surgeon and naturalist to Lord Amherst's embassy to China in 1816 and 1817, and subsequently staff-surgeon to the East India company at Calcutta. He published a narrative of the voyage, but in consequence of the loss of his papers in the *Alcestis* frigate, on board of which he had embarked, the appendix to the narrative is imperfect. In his honor, the name *Abelia* was given to a dicotyledonous species of plants introduced from China.

ABEL, JACOB FRIEDRICH VON, German philosopher, born 1751, died 1829. He was professor of Philosophy at Tübingen. His principal work was entitled *Sammlung und Erklärung merkwürdiger Erscheinungen aus dem menschlichen Leben* (Collection and Explanation of Remarkable Phenomena in Human Life). 3 vols. 8vo.

ABEL, JOSEPH, painter, born at Aschach, in Austria, 1768, died at Vienna, Oct. 4, 1818. He was educated at the artists' academy in Vienna, where he gained several prizes. Historical subjects chiefly occupied his pencil. He studied in Italy seven years, and most of his best pictures were painted at Rome or Naples. The picture gallery of the Belvedere, and the academy at Vienna contain several of his works; some are to be met with in the galleries of St. Petersburg. He is held in much estimation by the Russians, having accompanied Prince Czartoryski to Poland, at one period of his life.

ABEL, KARL VON, a German statesman, born Sept. 17, 1788, at Wetzlar, where his father was professor of law. He himself received his first

education in the university of Giessen, and completed his studies at Wetzlar. He bore arms in the French campaign of 1814. After passing through a variety of minor offices, he became minister of the Interior of Bavaria in 1827. In 1831 he was appointed royal commissioner to the chamber of deputies. In a fierce debate on the liberty of the press, Abel threw himself among the ranks of the reformers, flinging all the weight of ministerial authority into the scale of freedom. "Liberty of the press," he said, "is one of man's noblest heirlooms, the most precious privilege of the citizen." As soon as a reaction had taken place, those ministers who had given utterance to popular sentiments, paid the penalty of their pseudo-liberalism. Among these, Abel was for a time suspended from his public employments. But the establishment of the Greek kingdom again put his services in requisition for the settlement of the constitution. He was made a member of the council of the regency, and entered upon the duties of his office with zeal. Greece was at this period the arena for political intrigues between England and Russia; the regency were divided in their predilections. Abel and one of his colleagues were roundly accused of being in Russian pay, a charge which they denied, affirming that they only sought to steer a middle course between the two governments and the principles represented by each. Abel was recalled July 31, 1834. He was appointed counsellor in the ministry of the interior in Bavaria, and in 1837, being in the full sunshine of royal favor, was appointed royal commissioner for the same department; and April 18, 1838, he became actual minister of the interior, on the dismissal of the prince Oettingen Wallerstein. He now openly avowed a political creed totally at variance with the liberalism he had once so warmly and generously advocated. He maintained that Bavaria had no representative constitution, and defended the slavish doctrine that ministers were the mere organs of the king, dependent on the royal pleasure. In consequence of the severity and personality of his remarks on his predecessor's course, in reference to the self-taxing power of the people, a duel between Abel and the ex-minister Wallerstein took place, which terminated without fatal result, however. Ultramontanism, and pure absolutism, are now the creed of this able and active minister, who, in an era perhaps the most important in modern history, has thus been the representative of diametrically opposite opinions. The influence of Lola Montez over King Louis was the rock on which Abel's ministry finally split. They declined to ratify the naturalization and ennobling of the lady, and taking issue on the subject resigned, in Feb. 1847. Abel has since been ambassador at Turin.

ABEL, NIELS HENRIK, an eminent mathematician, born Aug. 5, 1802, at Findöe, in Norway, and died April 6, 1829, at Arendal. In 1821 his knowledge and writings had already brought him into notice, and the

government made him an annual allowance of six hundred dollars to enable him to travel. At Berlin he became acquainted with the distinguished Orelle, and contributed to his "*Journal of Mathematics*;" he then went to Vienna and thence to Paris. His insatiable thirst for knowledge overtasked his health, and he died of consumption. Legendre and Orelle both bear honorable testimony to his surpassing merit, and declare that by his premature death science sustained great loss. His chief works have been published in a French translation by his instructor, Professor Holmboe.

ABEL DE PUYOL, ALEXANDRE DENIS, French historical painter, born at Valenciennes, 1787. He was a pupil in David's school. Among his pieces are Jacob blessing Joseph's children, and the Death of Britannicus, a large picture in the museum at Dijon.

ABELARD, or ABAILARD, PIERRE, an accomplished scholar and dialectician of the 11th and 12th centuries. His name is, however, less celebrated for his mental acquirements than for his persecutions, and for the romantic interest that attaches itself to the history of his amour with Heloise. He was born in 1079, near Nantes, in Brittany, of parents in good circumstances. Having made early and rapid progress in the learning of the age, he relinquished his family inheritance in favor of his brothers, that he might be free from the cares of property, and have no impediment to the gratification of his thirst for knowledge. At the age of sixteen he betook himself to Paris, and inscribed himself among the pupils of William de Champeaux, a famous professor of the age. In the public disputations which were the fashion of the day, Abelard had no superior, and did not fear to enter the lists with William de Champeaux himself. In a discussion on the origin and nature of ideas, he made such a brilliant display of ability, learning, and logical acuteness, that he endangered the supremacy of De Champeaux in the seat of learning where he had so long held sway, and his jealousy was at a high pitch when Abelard, though only twenty-two years old, opened a school of philosophy at Méhun, near Paris, a favorite retreat of the Court, which was well attended by students who deserted the other teachers. Abelard's failing health compelled him for a time to retire to his native air, but so soon as he had recruited his strength, he returned to the scene of his triumphs, and resumed his place as pupil at the feet of his old master. De Champeaux became a monk, but still continued his secular pursuits, and the fiery debates were renewed, in which Abelard again came off victor. De Champeaux was made bishop of Chalons, and his new power was exercised to crush his adversary with other weapons than those of argument. The canon Fulbert had a niece of whose intellectual and personal accomplishments he was justly proud. Admiring the talents and distinction of Abelard, he invited him to complete the education of his beautiful niece. Abelard boasted

that he taught to Heloise the three languages necessary for the understanding of the Scriptures. The relation of master and pupil was not long preserved; a warmer sentiment than esteem seized their hearts, and the unlimited opportunities of intercourse which were afforded them by the canon, who confided in Abelard's age (he was now 40) and in his public character, were fatal to the peace of both. The condition of Heloise was on the point of betraying their intimacy. They fled—Fulbert pursued, and Abelard having proposed marriage, the enraged uncle consented. On account of Abelard's ecclesiastical ambition, this marriage was to be kept secret, but Fulbert divulged the fact, which Heloise, from a spirit of devotion to her lover, denied. Exasperated at his niece's perverseness, Fulbert punished her, and she then fled to Abelard, who placed her in the nunnery of Argenteuil. Fulbert now abandoned himself to a transport of savage vindictiveness, and, watching his opportunity, burst into Abelard's chamber with a band of ruffians, and gratified his revenge by inflicting on him an atrocious mutilation. Fulbert was deprived of his benefice, his goods confiscated, and his accomplices punished by undergoing the treatment they had inflicted on Abelard. In this business, Abelard, in his memoirs, admits his own excessive culpability; he states that he was under evil influence; that he abused the confiding trust of his friend Fulbert, and that he deliberately plotted the seduction of Heloise, who, on her part, was far less blamable than he. For, while it is a question whether he did not intend to desert her, her conduct to him was full of generous devotion. The unhappy Abelard, on his recovery from the outrage, sought an asylum in the monastery of St. Denis, and became a monk. Heloise took the veil at Argenteuil. Abelard's spirit was not, however, crushed—he continued his public lectures. His great popularity soon drew a crowd of eager students from all parts, and this roused the malice of his old opponents. He abandoned the field of profane philosophy, and addressed himself to theology. His writings on the nature of the Holy Trinity, to which some of the tenets of the modern Unitarians bear a close resemblance, were made the point of attack. In 1131 he was accused of heresy, and a council being called at Soissons, in which he was not allowed to defend his doctrines, his works were adjudged heretical, and ordered to be burnt. The monks of St. Denis, who were desirous of relieving themselves of a brother whose strict life was a rebuke to their own, now took offence at his opinion, that St. Denis, the patron saint of France, had not converted Saul. For this impiety they followed him up so fiercely that he was compelled to escape to Troyes, where he built himself a rude hermitage, after the fashion of an anchorite. Many of his pupils followed their beloved master into his retreat, and with their assistance he founded the Paraclete. But this dedication of a chapel to the

Holy Ghost was stigmatized as an innovation. He was now elected abbot of the monastery of Saint Gildas de Ruys, in the see of Vannes, but this was a source of further trouble. The feudal lord of the monastery had deprived the monks of their territory, for their irregular life, which Abelard himself was no less desirous of reforming, and thereby ran the risk of assassination within the walls, while in his desire to maintain the temporal rights of the convent, he was in little less danger without. He regretted the seclusion and independence of the Paraclete. Heloise had been elected abbess of Argenteuil. The demeanour of the convent had been claimed by the monks of St. Denis, and the nunnery suppressed. Heloise and her nuns were without home or shelter. In this emergency, Abelard offered them the Paraclete to found an institution there, and his proposal was confirmed by the bull of Innocent II. This reunion, after a separation of eleven years, was precious to both. His doctrines once more brought persecution upon him. This time St. Bernard was his opponent. Abelard was charged with dogmatizing on the power and nature of the divine essence, thereby attempting to reduce to human comprehension that which Bernard affirmed was, and ought to be, held incomprehensible by all Christians. In 1140 a council was held at Sens, in which Louis VII. in person presided. His opinions were again adjudged heretical, and he was sentenced to perpetual silence. To escape this decree, he appealed to the pope, and set out for Rome, and on his road thither he was able to interest Peter the Venerable, who was abbot of Cluny, in his case. This friend used his efforts on his behalf, and procured an absolution from the holy father. Abelard died in 1142, aged 68, at St. Marcel, near Chalons, whither he had gone from Cluny for his health. His body was delivered to Heloise, and by her interred at the Paraclete, where she herself was afterwards buried by his side. In 1792 the Paraclete was sold, and the remains of the two lovers were removed to the church of Nogent sur Seine. They were exhumed in 1800 and placed in the garden of the Musée Français in Paris, and in 1817 were deposited beneath a mausoleum in the cemetery of Père la Chaise. The position of Abelard in the philosophical movement of his age is well described by M. Cousin: "A hero of romance within the church, a refined spirit in a barbarous age, a founder of a school, and almost the martyr to an opinion, every thing conspired to make Abelard an extraordinary personage. But of all his titles, that which gives him a separate place in the history of the human mind, is his invention of a new philosophical system, and his application of this system and of philosophy in general to theology. Doubtless before Abelard might be found some rare examples of this dangerous process, although a useful one, even in its errors, to the progress of reason; but it is Abelard who established it as a principle; who contributed more than any other to found scholasticism, for scholasticism

is nothing else. After Charlemagne, and even before, there was taught in several places a little of grammar and logic; religious instruction, too, was not wanting, but this instruction was limited to a more or less regular exposition of sacred dogmas; it might suffice for faith, but did not nurture intelligence. The introduction of dialectics into theology could alone produce that spirit of controversy which is the vice and the honor of scholasticism. Abelard is the chief author of this introduction; he is, then, the principal founder of the mediæval philosophy, so that France has not only given to Europe, through Abelard, the scholasticism of the 12th century, but also at the beginning of the 17th century has given, in Descartes, the destroyer of this same scholasticism, and the father of modern philosophy. And there is no inconsistency in this; for the same spirit which had raised the ordinary religious instruction to that systematic and rational form which we call scholasticism, would alone be able to rise above that form, and to produce philosophy properly so called. Thus the same country was able to support, with an interval of a few centuries, Abelard and Descartes. We discover also, through the many differences of these two men, some striking resemblances. Abelard sought to give an account of the only thing which could be studied in his time—theology; Descartes has given account of what it was permitted to study in his time—man and nature. The latter recognized no authority but that of reason; the former undertook to introduce reason into authority. Both doubt, both investigate; they seek to understand all that is possible to man, and to rest only in certainty. This is their spirit in common, which they borrow from the French spirit, and this fundamental feature of resemblance causes many others; as, for example, that clearness of language which springs spontaneously from definite and precise ideas. It may be added that Abelard and Descartes are not only both Frenchmen, but that they belong to the same province, to that Brittany whose inhabitants are distinguished by so lively a sense of independence, and so strong a personality. Thence, in these two illustrious compatriots, with their native originality, with dispositions to admire moderately what was done before their time and in their time, came the love of independence, pushed often into a quarrelsome spirit, confidence in their own strength and contempt of their adversaries, more of logical connection than of solidity in their opinions, more sagacity than comprehensiveness, more of vigor in the temper of their mind and character than of elevation and profoundness in their thought, more of ingenuity than of common sense, satisfied with the perfection of their own views rather than rising to universal reason." The works of Abelard were collected by François Amboise and Andrew Duchesne, and first published at Paris in 1616. The best edition of his works is that of Cousin (Paris, 1850), who has accompanied the principal writings of the

author with admirable critical and expository notices. The narrative of his life is contained in his autobiography entitled *Historia Calamitatum suarum*. Pope has versified some of the supposed letters between the lovers. The most important modern works on the biography of Abelard are by Remusat, *Abelard*, 2 vols., Paris, 1845; Fessler, *Abelard and Heloise*, Berlin, 2 vols., 1806; Guizot, *Essai sur la vie et les écrits d'Abelard et d'Heloïse*, Paris, 1839; Böhringer, *Kirchengeschichte*, vol. iv. 1854; and Wight, *The Romance of Abelard and Eloise*, New York, 1853.

ABELIN, JOHN PHILIP, historian, born at Strasburg at the end of the 16th century. He was the compiler of the *Theatrum Europæum*, an encyclopædic work on contemporary history, in 21 vols. fol.

ABELITES, ABELIANS, ABELONIAN, ABELONITES, a sect of Christians who denounced matrimony as a service of Satan, maintaining that thereby criminal sin was perpetuated. As Abel had not been married, they took their name from him. Their numbers were recruited by children whom they brought up in pairs of each sex under one roof. They existed about the 4th century, and are mentioned by Augustine. They resided near the city of Hippo.—ABELITES, the name given in the 18th century to the members of a secret society, whose professed object was to cultivate the honesty and candor of Abel, whom they took for their model and patron.

ABELL, JOHN, an English singer and lute-player, in the reign of Charles II. That monarch at one time meditated sending him to Venice, to prove to the Italians the existence of musical talent in England, but the scheme was finally abandoned. After the revolution he was deprived of his place in the chapel royal, and wandered over Europe for several years. On his return he published a volume of songs, dedicated to King William. He retained his vocal powers (as it is supposed by some secret process) until the time of his death.

ABEN, AVEN, BEN, EBN, IBN. These are all forms in the different Semitic languages, of the same original word, and are used as prefixes to proper names, and the compound word so formed is the name of the son of the individual whose name makes the second half of the compound. Thus, Aben-Ezra, Ben-Hadad, Ibn-Khallikan. The second form (Ben) is the one more commonly met with in the Scriptures. Sometimes the second word of the compound was not a proper name, but an abstract noun, as Ben-Oni (son of pain), Ben-Jamin (son of the right hand). Sometimes the persons thus designated by *son*, and an abstract noun, were designated by the noun alone, as *Jemini*, instead of Benjamin. This form of constructing a name by composition was common in the Semitic languages, because those languages lacked patronymic names. Individuals sometimes had another name beside this genealogical one. The Arabs have carried this genealogical nam-

ing so far as to combine three generations; that is, to indicate more precisely the individual, the name of his son, if he had one, is added to the name of his father. Thus, Isaac's name, in the Arabic style, would be Abū Ja'qub Ishāk ben Ibrahim (father of Jacob, Isaac, son of Abraham).

ABEN EZRA, **ABRAHAM BEN MAIR BEN EZRA**, born 1093, died at Rhodes about 1170, one of the most esteemed biblical commentators among the Jews of the 12th century. He was also distinguished as a physician, mathematician, and philologist. He travelled extensively, and his writings were numerous. His commentaries have been used by subsequent Hebrew scholars.

ABENCERRAGES, the name of a distinguished Moorish family, whose mortal feud with the Zegris, another noble family of Granada, contributed to the fall of the Granadian monarchy. The quarrel originated in the varying fortunes of Mohammed VII. of Granada, who was alternately a monarch and an exile, and whose cause the Abencerrages espoused with unswerving fidelity. It is told that one of the youth of the Abencerrages having loved a lady of the royal house, was climbing to her window, when he was discovered and betrayed, and the king in revenge for the outrage on the sanctity of his harem, shut up the whole Abencerrage family in a tower, and letting loose the fury of their hereditary enemies, had them butchered in cold blood. This tragical tale has been the foundation of both Spanish and French dramas. The inexorable criticism of our century has, however, been at pains to demolish this romantic history. (See Conde's *Historia de la dominacion de los Arabes en España*, Madrid, 1829.)

ABENDBERG, one of the secondary elevations of the Bernese Alps, rising from the plateau of Interlachen, or Berner Oberland, in the canton of Berne, Switzerland, south-west of the village of Interlachen, its northern base abutting on the lake of Thun. It rises about 3,500 feet above the plateau, and 5,800 above the sea level. Its southern slope is very fertile, and the lower portion heavily timbered. On this slope, about 1,000 feet below the summit, is the asylum for Oretina, founded by Dr. Louis Guggenbühl in 1842. The site now occupied by the asylum is on a level terrace of the mountain, and was originally purchased by Kasthofer, the eminent Swiss agriculturist, as a suitable locality for some extensive agricultural experiments. Dr. Guggenbühl having satisfied himself, by three years of careful experiment, that cretin children were, in most cases, susceptible of physical and mental improvement, and that a high and cool situation, with pure air, and freedom from miasmatic influences, was an important element in the necessary treatment, made overtures to Kasthofer for the purchase of this tract, which were accepted, and Dr. G. erected some plain, cheap buildings, and commenced his benevolent labors,

which have been continued to the present time. He has between thirty and forty pupils, and is aided, in their training, by one or two young men, and by two or three Sisters of Charity. The asylum has received considerable assistance from benevolent individuals in England; and the philanthropic founder, though often reduced to severe pecuniary straits, has succeeded in rescuing a large number of these unfortunate creatures from a life of fatuity. As his success has become known, similar institutions have been established, at various points in the Alps. Cretinism prevails to a very considerable extent in most mountainous countries, but more fearfully in the Alps than elsewhere. In the four French departments of Savoy, Isere, Hautes Alpes, and Basses Alpes, in a population of 958,000 inhabitants, Mr. Niepce found in 1850, 54,000 persons affected with cretinism, or a little more than 1 to every 18 inhabitants.

ABENDROTH, **AMADEUS AUGUST**, a German lawyer, born at Hamburg, Oct. 16, 1767, died Dec. 16, 1842. He received his legal doctorate at Göttingen in 1790. In 1800 he was elected Counsellor in Hamburg, where he had been practising as an advocate for eight years. In 1806, when the French seized the city, he was placed at the head of the police, and in 1810 he became mayor. When, in 1818, the city fell for a short time into the possession of the Russian and German troops, he took charge of the police, but being proscribed by the French, was obliged to flee with his family on the retreat of the allies. He became one of the leaders in the patriotic movement to restore Hamburg to independence, and in 1831 was chosen Burgomaster.

ABEN-HUMEYA, a Spanish renegade, died in 1568. His proper name was Ferdinand de Valor. He led the Moors of Granada in their revolt during the reign of Philip II., who was the object of his special hatred. Being betrayed by one of his followers he was strangled. Martinez de la Rosa has dramatized this story.

ABENSBERG, a small town with 1,200 inhabitants, in the circle of Regen, kingdom of Bavaria. It is believed to have been the Abasium of the Romans. There is a thermal spring in the neighborhood, with the ruins of a fine castle. On April 20, 1809, Bonaparte fought and defeated the Austrians near Abensberg, who lost twelve guns and 13,000 men. This victory was the precursor of the victories of Landshut and Eckmühl, and opened the road to Vienna.

ABER, a Celtic term, prefixed to names of places in Great Britain, signifying "the mouth of a river."

ABERBROTHWICK, or **ABERBROATH**, a small commercial town in the county of Forfar, Scotland, at the mouth of the small river Brothock, 58 miles from Edinburgh, lat. 56° 32' N. long. 2° 34' W.; population 8,802. It is a royal burgh by charter of 1186. It is joined with the towns of Brechin, Forfar, Montrose,

and Bervie in sending one member to Parliament. Its manufactures are sail cloth, thread, and leather. It has a small harbor, defended by a breakwater and twelve-gun battery. The ruins of an abbey are in the neighborhood, which was destroyed in 1560, and whose last abbot was the celebrated Cardinal Beaton.

ABEROROMBIE, JAMES, a major-general in the British army, intrusted by Mr. Pitt, in 1758, with 50,000 troops, for the purpose of capturing Louisburg, and retaking Fort William Henry and other places in the hands of the French, which gave them the command of the lakes. He attacked Ticonderoga July 8, at the head of 15,000 men, and was repulsed with a loss of nearly 2,000 killed and wounded. He then retreated to his fortified camp on the south side of Lake George. He was superseded by Sir Jeffery Amherst, who retook Ticonderoga and Crown Point.

ABEROROMBIE, JAMES, D. D., an eloquent divine of the Episcopal Church, and an accomplished classical scholar, was born in 1758, and died at Philadelphia, June 26, 1841, the oldest preacher of that church in the city. As an instructor of youth, he had a great reputation.

ABEROROMBIE, JOHN, M. D., an eminent physician, born at Aberdeen Nov. 11, 1781, died in Edinburgh, Nov. 14, 1844. He graduated at Marischal College, and obtained his medical degree at Edinburgh in 1808. He contributed valuable papers to the "Edinburgh Medical and Surgical Journal." His principal works are "Pathological and Practical Researches on Diseases of the Brain and Spinal Cord," Edin., 1828, 1830; "Inquiries concerning the Intellectual Powers of Man, and the Investigation of Truth," 1880; "Philosophy of the Moral Feelings," 1838. The University of Oxford conferred on him the honorary degree of Doctor of Medicine, and in 1838 his University elected him its Lord Rector. He was considered the first physician in Scotland.

ABEROROMBIE, ALEXANDER, Lord, a judge in the courts of session, and justiciary in Scotland, born Oct. 15, 1745, died Nov. 17, 1795. He was early destined for the law, and studied at Edinburgh, where he raised himself to the highest standing at the bar. But, like so many other eminent Scottish jurists, he had strong literary tastes which he did not allow to sleep. He was one of the society that set on foot, in Edinburgh, two periodical papers, the "Mirror" and the "Lounger," the former in 1779, the latter in 1785. He was raised to the bench in May, 1792.

ABEROROMBIE, JAMES, Baron Dunfermline, peer of Great Britain, born Nov. 1776, was speaker of the house of commons, under the Melbourne reform ministry, 1835, which appointment he contested against Sir Charles Manners Sutton, the tory candidate. The struggle was a severe one, but ended in the appointment of the whig candidate. He fulfilled the duties of his high office, so as to win the esteem of all parties, and on the meeting of the new

parliament of 1837, under Queen Victoria, he was unanimously re-elected. He resigned the speakership in 1839, and was called to the upper House.

ABEROROMBIE, Sir RALPH, a British general, born 1738, died March 28, 1801. He was descended from a good Scottish family, being an elder brother of Lord Alexander Abercromby, of Scotland. In 1798 he went to Holland in the unsuccessful Walcheren expedition, and gained universal esteem by his humanity and soldierlike qualities. He was now made commander-in-chief in the West Indies, and took several of the French West India islands. After his recall he was made lieutenant-governor of the Isle of Wight, and showed his judgment and presence of mind in suppressing a mutiny of the Highland regiments, who had revolted because they were required to serve as marines. On the breaking out of the rebellion of '98 in Ireland, he was sent there as commander-in-chief, but his distaste for the service was so decided, that he was removed to Scotland. In 1801 he was sent to Egypt to act against the French invasion of that country, and on March 8, he made good his landing in the face of a hostile force, but with considerable loss. He encamped near Alexandria, and was attacked by the French, and on the 21st the battle of Alexandria was fought. Sir Ralph Abercromby was mortally wounded early in the action, but concealing his wound, he continued on the field, giving his orders, until after the action was over, and the French entirely defeated. His dangerous condition was then made known. He died a few days afterwards, and his remains were conveyed to Malta and there interred.

ABERDEEN, New, the capital of the county of Aberdeen in Scotland, is situated between the rivers Don and Dee, and near the mouth of the latter river, 512 miles from London, 114 from Edinburgh. It was styled New Aberdeen after its restoration in 1336, when the city had been burned by Edward III. It is a spacious and well-built city, and being also an important seaport, takes high rank among the commercial towns of Great Britain. It is incorporated by royal charter, granted by William the Lion in 1179. The public edifices are numerous and handsome. They are the East and West church, the Marischal College, the Royal Infirmary, the Town House and Tolbooth or Jail, the Post-Office and Mechanics' Hall. The granite for which the district is famous being the principal material of the costlier structures, gives to the town a handsome appearance. There is a very fine one-arch bridge of 132 feet span over the river Dee. This cost \$65,000 and opens into Union street, 70 feet wide and over 1,300 yards long, which is the chief thoroughfare of the city. Over the Don at the north end of the town is another bridge of 5 arches, of 75 feet span, constructed at a cost of \$70,000. There are about fifty religious edifices of all denominations, Presbyterians being the largest number; and among

them, a considerable number of free church. The East and West church is the finest religious edifice, being a noble pile of 170 feet long, surmounted by a steeple and spire 150 feet high. The Town House and Tolbooth are situated in Castle street, and have a spire 120 feet high. The West Prison, better known as the Bridewell, was built in 1809, and cost \$30,000. The educational establishments are Marischal College, founded by George Keith, Earl of Marischal, in 1593. There are professors of all the usual branches of science and belles lettres. It has an observatory and good collection of instruments, a museum, and fine library. The session begins in November and ends in April. The curriculum runs over four sessions, and costs from \$150 to \$250 per session. The annual sum expended in prizes and bursaries, of which there are 16, is about \$75,000. Gordon's Hospital is a school for boys. It was founded in 1729 by Robert Gordon and incorporated by royal charter in 1772. There are about 150 boys, who are admitted from 8 to 11 and kept until 15 years of age. They receive a sound modern education besides their board, and on quitting the foundation are entitled to receive an apprentice fee of \$50 or \$35. The other charitable institutions are, the royal infirmary and lunatic asylum, the general dispensary, two ophthalmic institutions, the Cruickshank asylum for the Blind, Dr. Carnegie's hospital for destitute female children, and the Midbellie fund for granting pensions of \$25 to \$75 to widows, and the female orphan asylum. The last was established in 1840. It is intended for the female children of 3 years' residents in Aberdeen or the adjoining parishes. The inmates are received from 4 to 8 years of age, and are trained for domestic service. It is supported by voluntary contributions, and cost about \$15,000. The Royal Infirmary was incorporated in 1773. It is partially endowed and partly maintained by annual subscriptions. It accommodates above 150 indoor patients, and provides for more than 250 inmates. It is an excellent medical school. It was built at a cost of \$100,000. In 1848 a Poor House was opened. There are about 200 inmates and over 900 in the receipt of outdoor relief. The cost of outdoor poor is averaged at \$21 a year each, and the indoor poor at \$36 per annum. In old Machar parish the outdoor paupers in 1852 numbered 969, at an average of \$28 for each inmate of the house. The Cross on the east of Castle street is a monumental structure of remarkable beauty. It was erected in 1582 by John Montgomery, a native architect, and upon it are medallions, in alto relievo, of all the kings of Scotland from James I. to James VII. Near it is a fine statue of the Duke of Gordon. The market is commodious, built in two floors, with galleries running round the whole. The commerce and manufactures of Aberdeen are extensive. Ships of 1,000 to 1,500 tons are built there. Cotton manufactures employ 4,000 hands, linens and woollens each

as many more. The Aberdeen granite is used all over Great Britain. Aberdeen is actively engaged in the northern whale fishery. Total tonnage in 1852 belonging to the port, 52,868 tons. The Victoria dock has a water area of 40 acres. The bay affords safe anchorage with offshore winds. On the south point of the bay there is a lighthouse with two fixed lights, the one 115 the other 185 feet above high spring tides. There are water works which supply the town from the river Dee. There is railway communication direct with London. The town is governed by a provost, 4 bailies, a dean of guild and a treasurer, with 12 other members of council. The population, in 1851, 71,945, returns one member for parliament. Parliamentary electors 2,947, municipal electors 2,418.

ABERDEEN, OLD, is of great antiquity. It is situated one mile north of the new town, near the mouth of the river Don. Population about 2,000. It was formerly a Bishop's See and had a fine cathedral dedicated to St. Machar. The Bishop's See is said to have been translated as early as 1004 from Mortlach, and in 1158 Malcolm the Fifth granted a new charter. The Cathedral has been reduced by the ravages of war to the humble dimensions of a parish church. Two spires and the nave are all that remains of the original structure. A fine Gothic bridge, 67 feet span, and built in 1420, crosses the Don. The King's College, an ancient seat of learning, is situated in Old Aberdeen. It was founded in 1494 by William Elphinstone, Bishop of Aberdeen and Chancellor of Scotland. There are professorships of Divinity, Medicine, Greek, Oriental languages, &c. There are several bursaries, thirty of which are awarded after public competition. The value of these and the prizes is \$10,000 per annum.

ABERDEEN, the capital of Monroe county, Mississippi, situated on the right bank of the Tombigbee river, 165 miles N. E. of Jackson, 28 miles N. of Columbus, and by water 540 miles from Mobile. Steamboats ply regularly between Mobile and Aberdeen, the latter town sending 80,000 bales of cotton thither annually. The adjacent country is highly productive. In 1858 the population numbered 8,500.

ABERDEEN, EARLS OF, Viscounts of For-martin, and Barons of Haddo, Methlie, Turris, and Kellie. The title is only in the Scottish peerage, and was created in 1682. The family is an offshoot of the ancient Scotch family of the Gordons.—Sir JOHN GORDON, of Haddo, was created a baronet in 1642, by Charles I., as reward for his services in the battle of Turriff, between that monarch and the parliamentary forces. Being at length taken prisoner, after a desperate defence of the house of Kellie, he was long imprisoned in the nave of the ancient Cathedral of St. Giles, at Edinburgh, which from him took the familiar name of "Haddo's Hole," and was at length beheaded in 1644, and his estates declared forfeited.—After the restoration, Sir GEORGE GORDON of Haddo, Lord

High Chancellor of Scotland, was fortunate enough to procure the restoration of the family estates, and in 1682 was elevated to the peerage by the titles above mentioned. On the revolution the new Earl resigned office, and declined taking the oaths of allegiance to William of Orange, but appeared again at court in the reign of Queen Anne. He opposed the Union of England and Scotland in his seat in parliament, and died in 1720, aged 83.—The present Earl of Aberdeen, GEORGE HAMILTON GORDON, was born in 1784. He is the 4th in succession from the Chancellor. In 1814 he was created a peer of the United Kingdom, by the title of Viscount Gordon of Aberdeen. His father never succeeded to the title, and he was yet a minor on the death of his grandfather, in 1801. The Earl of Aberdeen was educated at Harrow, and at St. John's College, Cambridge, where he graduated in 1804. While still a young man he founded a club, the members of which must have made a journey to Greece. This was in consequence of a visit he had himself paid to those classical regions instead of the usual continental tour, the war preventing English travellers from crossing the channel. This circumstance, and his literary contributions to the "Edinburgh Review," procured him the distinction of a notice in the "English Bards and Scotch Reviewers;" in which Lord Byron avenged himself for the merciless flaying he had received in the pages of that powerful periodical. The peers of Scotland and Ireland do not sit of right in the British upper House, but send representatives selected from their body. In 1806, Lord Aberdeen, though only 22, was elected as one of the 16 Scottish representative peers, and retained this honor until he was created a peer of the realm in his own right. The politics of the house of Aberdeen had always been ultra tory. In 1806 torism, or as it is now styled, conservatism, was in the highest repute, and supported by the whole power of the government and the voice of the nation. The popular sentiment, which, under the impetus of the American Revolution, was fast ripening into a desire for more liberal institutions, had been suddenly checked in its enthusiasm by the excesses of the French patriots and by the universal sympathy which the sufferings of the royal family and nobility of France inspired. It was during Mr. Perceval's ministry that Lord Aberdeen first entered parliament. In 1811, in his maiden speech, he moved the address in the House of Lords in answer to the Prince Regent's speech, at the opening of the session. In 1813 he was accredited to the court of Vienna, as a secret envoy for the purpose of detaching Austria from her enforced alliance with Napoleon. The effort proved successful, and he was soon after again sent to Vienna and arranged the preliminaries between the Emperor Francis and Joachim Murat, king of Naples, for the exchange of his new kingdom for other European states, with a view to the restoration of the Bourbons to the throne of Naples. From

the peace to 1826 Lord Aberdeen took no very active part in politics. During Canning's ministry he was in opposition. In 1828, the Duke of Wellington having formed a ministry on high tory principles, Aberdeen became Secretary of State for Foreign Affairs. The Greek war of independence was now brought to a close by the total destruction of the Turkish fleet, in the battle of Navarino. This event, which was hailed with satisfaction by the people of England generally, was viewed with great distaste by the friends of absolutism who composed the cabinet; accordingly, the battle itself was characterized in the royal speech from the throne as an "untoward event," a phrase which has ever since stuck to Lord Aberdeen. This ministry was distinguished by the abolition of the Test and Corporation Acts, and by the Catholic Emancipation Act. Herein the ministry acted adversely to the views of many of their staunchest supporters, but in conformity with popular sentiment. Their determined opposition, however, to parliamentary reform, again turned the tide of opinion against them, and the death of George IV. compelled them to make way for Earl Grey. Lord Aberdeen took a conspicuous part in endeavoring to accommodate the differences which had sprung up in the Scottish National Church, and which resulted in the secession of a large number of ministers; and in the establishment of the Free Church of Scotland. From this interference, although distinguished by moderation and ability on his own part, he reaped only obloquy from both parties. In 1841, when Sir Robert Peel came into power, Aberdeen again went to the Foreign Office. His return was greeted with much satisfaction on the continent, and the effect of more pacific counsels was evident in the renewed good understanding between the English and French Courts, and in the mutual compliments and visits interchanged between Queen Victoria and Louis Philippe. During his tenure of office on this occasion the North Eastern and Oregon questions with this country were settled. In 1853 he was again summoned to office, and this time as Prime Minister. The invasion of the Turkish Empire by the Emperor Nicholas now led to the war with Russia. For some time it was felt that Lord Aberdeen's known conservative opinions, and his long habits of personal intimacy with the ministers of absolute monarchs, somewhat damped his patriotic zeal. Aberdeen, essentially a peace minister, probably hesitated to accept the terrible issue of war, and hoped to negotiate a favorable settlement of the difficulties. Eventually, however, he was compelled to declare himself on the subject, his languid indifference was abandoned, and the struggle commenced in earnest. The mismanagement and blunders in detail, inseparable from the conduct of war after a long peace, drew down public disgust, and Aberdeen was again compelled to resign office. He has been twice married.

He has filled the honorary appointment of President of the Society of Antiquaries, and in 1822 published a work on Grecian architecture.

ABERDEENSHIRE, a county of Scotland, on the north-east coast between lat. $56^{\circ} 52'$ and $57^{\circ} 49'$ N. and long. $1^{\circ} 49'$ and $3^{\circ} 48'$ W. Its greatest length is 87 miles, and its breadth 36. It has an area of 1,985 square miles, or 1,370,740 acres, being about one-sixteenth of all Scotland. The population by the census of 1851 was 214,658, about two-thirds of which depend on agriculture. It contains 83 parishes, and parts of 6 others, and is divided into the districts of Mar, Formartin, Buchan, Garioch, and Strathbogie. On the south and south-west borders of the county are the Grampian Hills. The Highlands of this district include some of the highest mountains in Scotland. Ben Macdhui, Cairntoul, Ben Avon, and Cairngorm, from which last the fine yellow pebble, so much used in Highland dress and ornaments, takes its name. The Scottish kings used to summon their nobles and retainers, and hold formidable gatherings to hunt the red deer in the wilds of Braemar, and in modern days the abundance of carefully-preserved game, makes the district a favorite rendezvous of the sportsman who is fortunate enough to secure the coveted privilege. These varied attractions induced the Queen to make Balmoral her autumn residence. The Bulls of Buchan, near Peterhead, are also an attractive object to the tourist. The chief rivers are the Dee and the Don. The climate, except in the mountain districts, is mild, and wheat comes to great perfection. Agricultural produce has greatly increased in value of late years. The exportation of cattle, sheep, pigs, eggs, and butter, from this remote district, which are transported by steam from Aberdeen to London, amounts to upwards of \$4,000,000 annually. Granite is the most important mineral production, and its exportation to London to pave the streets, employs 7,000 men, the quantity of stone exceeding 40,000 tons a year, at an average value of \$5 the ton. The annual rental of the county is valued at about \$4,000,000, although the assessment is fixed at a considerably lower figure. Besides the retreat of royalty, Balmoral, there are several noblemen's and gentlemen's seats, the principal of which are Aboyne Castle, belonging to the Earl of Aboyne; Haddo House, seat of the Earl of Aberdeen; Huntly Lodge, of the Duke of Richmond; Forbes Castle, of Lord Forbes. The county has four parliamentary boroughs, Aberdeen, Peterhead, Inverary, and Kintore.

ABERDEVINE (*carduelis spinus*), also called the siskin, a small European song-bird, which breeds in the north of Europe, and visits England, France, and Germany, during the winter season only. It somewhat resembles the green variety of the canary bird, with which it is so far connected, that it will interbreed with it in confinement, when the produce is what are known by bird fanciers as mules. Its length is about 4½

inches, its tail short and forked. Its upper parts are variegated with olive-brown, yellow, and pale green, the feathers being edged with the second-named color; its bill and legs are light horn brown. Its note is soft and pleasant. It builds in the topmost branches of pine trees, and lays four or five bluish-white eggs, speckled with purplish red. Its Latin name *carduelis*, expresses its fondness for the seeds of the thistle, which afford its favorite food.

ABERGAVENNY, a Welsh town in Monmouthshire, at the confluence of the Usk and Gavenny, 143 miles from London. Pop. 4,797. It is supposed to have been the Roman station of Gobanium, and once possessed a charter of incorporation, which was forfeited in the reign of William III. It is in the centre of a coal and iron district. The principal trade is in wool. There is a fine bridge over the Usk, together with the remains of a castle and of a Benedictine priory. There are several places of worship.

ABERLI, JEAN LOUIS, landscape painter, born at Winterthur, 1728, died at Berne, 1786. Swiss subjects chiefly occupied his pencil. His colored engravings were much esteemed, and are still sought for by amateurs.

ABERNETHY, JOHN, an eminent Presbyterian clergyman, born at Coleraine, in Ireland, Oct. 19th, 1680, died in Dublin, December, 1740. In 1708 he took charge of a congregation in Antrim, where he remained for more than twenty years. A dispute arising among the dissenting clergy at Belfast, respecting subscriptions to the Westminster Confession, he took the negative side, thereby incurring the censure of a general synod. He was consequently induced to accept an invitation to preach in Dublin, where he became very popular, and resided until his decease. His sermons, of which he published several volumes, are remarkable for polemical fairness.

ABERNETHY, JOHN, surgeon, born in London, 1765, died April, 1831. His parents removed to London while he was yet young, and he had but a common education. He was apprenticed to Sir Charles Blick, surgeon and lecturer of St. Bartholomew's Hospital in London, and within the walls of that institution he received his professional education. As a surgeon, Mr. Abernethy's skill was of the first order, and he first performed the bold operations of tying the carotid artery and the external iliac artery. The success of these great operations made his fame European. It was, however, as a pathologist that Mr. Abernethy attained his chief celebrity. He was a pupil of the celebrated John Hunter, one of the most philosophic intellects of modern times, and from him he imbibed that taste for physiological principles which distinguished his views of surgery. Surgery, originally confined to dentistry and blood-letting, had risen above its lowly condition, but was still little more than a manual art. But Mr. Abernethy's work, entitled the "Constitutional origin and Treatment of Local Diseases,"

opened the way to the knowledge of truths now universally established, but which, fifty years ago, were perfectly novel. Abernethy ascribed local diseases to general constitutional derangement; and topical treatment, which had previously been the surgeon's sheet-anchor, was by him reduced to a secondary rank. Henceforth it was to be an auxiliary to the more comprehensive method, which included the whole system in the scheme of its ameliorative efforts. Mr. Abernethy also propounded another theory—that constitutional derangements primarily proceed from affections of the stomach and bowels. This idea, however lost sight of, was not so new to professional students as the other. Nevertheless, its importance cannot be overrated, and the sanction of Mr. Abernethy's opinion caused increased attention to this part of the human frame as the cause of disturbance. In the latter part of his career he perhaps carried this doctrine to its extremest limit, and by presenting a point of attack for ridicule, somewhat damaged the popularity of his views, although their soundness remained unimpaired. In his private practice, Mr. Abernethy's eccentricities of manner have furnished copious materials for anecdote. Much, no doubt, has been laid to his charge which had no existence except in the too fertile brain of professed humorists. Enough of truth remains, however, to affix upon him the stigma of needless and unprovoked coarseness to his patients.

ABERRATION or **LIBERT**, the alteration of apparent position in a heavenly body, due to the fact that the observer on the earth is in motion. When a train of cars is running east during a northerly wind, the wind appears to come from the east of north, and more easterly in proportion to the speed of the train. In like manner, the light from a star appears to come from a point slightly nearer the point towards which the earth chances to be moving, and we see no star in its true place, unless we are moving directly towards or from the star. This causes the star to have a slight annual motion, describing usually a minute ellipse in the sky. The aberration of light, discovered by Bradley, is a beautiful proof of the motion of light, and of the earth's motion. The longest diameter of the minute ellipses of aberration is about one fortieth the diameter of the moon. See Biot's or Herschel's "Astronomy," *Traité sur l'Aberration*, par Fontaines des Crutes.

ABERT, JOHN J., military engineer, born in Maryland, 1791, graduated at the Military Academy at West Point, April 1, 1811, and in 1814 was appointed Major of the Topographical Engineers. In Nov. 1824, he became Brevet Lieutenant Colonel. Having discharged the office of Indian Commissioner in 1832 and 1833, on the reconstruction of the army he was appointed Colonel of the corps of Topographical Engineers, July 7, 1838, a post he yet holds. The whole military topography of the United States has been for years under the supervision of Col. Abert.

ABEX, a territory situated between Nubia or Sennaar on the north, Sennaar and Abyssinia on the west, and Abyssinia on the south. It is 500 miles long, 100 miles broad, mountainous, unhealthy, and infested with wild beasts.

ABEYANCE, Norman French *abbaisance*, or *abaissance*, expectation, a legal term in English and American law. The fee simple or inheritance of lands and tenements is in abeyance when there is no person in being in whom it can vest, so that it is in a state of expectancy or waiting until a proper person shall appear. Thus if land is leased to A for life, remainder to the heirs of B, the remainder is in abeyance until the death of B.

ABGAR, or **ABGARUS**, the name of a race of princes at Edessa, in Mesopotamia, whose existence has been denied by some writers. In a doubtful letter attributed to Eusebius, one of the family in particular is mentioned, who was cotemporary with our Saviour, and alleged to have been in correspondence with him. Pope Gelasius denied the authenticity of this letter. In the controversy which arose on the subject, a picture of Christ came to light, which it is pretended was sent by him to Abgar.

ABGILLUS, JOHN, surnamed Prester, son of the pagan king of the Frisii, A. D. 800. John became a Christian, and followed Charlemagne in many of his expeditions. From the austerity of his life he received the name of Prester or Priest. He attended Charlemagne in his expedition to the Holy Land. The similarity of name has caused him to be confounded with the mythical character of the romances of the middle ages, called Prester John. According to some of these romances, Abgillus never returned from the pilgrimage to the Holy Shrine, but went off and founded an empire among the Abyssinians in the interior of Asia.

ABIAD, **BAHR EL**, or **WHITE NILE**, a river of interior Africa, which unites at Khartoum with the Bahr el Azrek, or Blue Nile, and forms, together with that, the true river Nile. It is both the larger and longer branch of the two, and its sources have not yet been reached by any European. In 1842 it was traced by the expedition of Mehemet Ali as far south as lat. 4° 42' N. Dr. Werne, a German traveller, who was in the company, is the historian of this expedition; he describes the voyage as leading first through a region of magnificent forests, then through a low country, with frequent marshes, lakes and islands, and reaching at last into a rocky and mountainous region, in the latitude of the mountains of the Moon. In 1850 the river was still further traced by Dr. Knoblecher, the pope's vicar-general in Central Africa, who ascended a lofty mountain at lat. 4° 10' N., from which he had a view of a range in the distance which he judged to be at 8° N. lat. The river vanished from sight amid the distant mountains. The country was rich and beautiful, abounding in trees, and densely peopled. Bayard Taylor also ascended the White Nile, though not so far as Dr. Knoblecher, and has

given an interesting description of the country and its natives, and also an account of the higher explorations of Dr. Knoblecher, from information communicated to him by the latter, in personal interviews.

ABIATHAR (the father of abundance), a high priest of the Jews, was the son of Ahimelech, who was slain by Saul for receiving David when a fugitive. He was for a long time faithful to David, especially during Absalom's rebellion, when he accompanied the king, and carried away the ark. He afterwards, however, took part in the rebellion of Adonijah, and was, in consequence, deprived of the priesthood, and banished by Solomon, B. C. 1014.

ABIB (green), the first month of the Hebrew year, as originally named by Moses. It corresponds nearly to our April. Originally, the Hebrew months were only numbered. After the captivity this month was called Nisan (flight), because the Israelites fled from Egypt in that month. In the middle of this month the Jews keep the passover (Exodus xii. 18). In the modern Jewish reckoning, Tisri is the first month, which makes Abib the seventh month. The Coptic Christians have a month which they call Abib or Epip.

ABIDA-JEBEL, a volcanic mountain of Abyssinia, which, according to Kirk's estimate, is about 4,000 feet above the plain, and forms, with the mountain of Aiyalo or Azalo, the centre of a vast volcanic tract, from which sheets of lava have poured down from all directions upon the plain, creating a field of volcanic matter about thirty miles in diameter, studded with small cones, each showing a distinct crater. It is situated in the Mudaito territory, in lat. 10° 9' N. and long. 41° E.

ABILDGAARD, the name of a celebrated Danish family. I. **SOREN**, died 1791, employed himself in the collection of drawings of the different monuments of northern antiquity, for which purpose he travelled through Denmark, at the expense of the Government. II. His oldest son, **PETER CHRISTIAN**, died 1810, founded the Veterinary School and the Society of Natural History at Copenhagen. III. His younger brother, **NICOLAI ABRAHAM**, an artist, born at Copenhagen, 1744, died in the same place June 4, 1809. At the time of his death he was Director and Professor in the Academy of Art. His artistic talents were developed by a residence of five years in Italy. Most of his large historical paintings were destroyed in the burning of the royal seat at Christiansburg, in 1794. His library was bought by the Royal Academy of Art. Among his pupils Thorwaldsen's name stands pre-eminent.

ABIMELECH, a Philistine king of Gerar, into whose dominions Abraham removed after the destruction of Sodom. The latter, from motives of prudence, pretended that Sarah, his wife, was his sister, whereupon Abimelech took her from him, intending to make her his concubine. By divine command, however, he restored her to her husband, rebuking him for the

fraud he had practised (Gen. xx.)—There was another king of Gerar of the same name, with whom Isaac sought refuge, and whom he deceived in the same way respecting Rebekah, with the same result. (Gen. xxvi.)

ABINGER, Lord, English lawyer, born in Jamaica, 1769, died in London, April, 1844. He is better known and remembered as Sir James Scarlett, one of the staunchest adherents of the old Tory party of England, in whose interest he represented the city of Norwich for many years. As an advocate he was one of the most popular men of his day. His practice was immensely lucrative. It was for years equal to £10,000 sterling per annum, and has been said even to double that sum. His influence with the jury was unbounded. His oratorical powers were of the most persuasive character; energetic declamation was particularly rare with him; his speech usually assumed almost a conversational character with the jury, and he had the art of appearing to address himself to each of his auditors individually. He became Solicitor General in 1829, under the Duke of Wellington, and in 1884 was made Chief Baron of the Exchequer.

ABINGTON, a post township of Plymouth county, Massachusetts, contains about 7,000 inhabitants, and is noted for its manufactures, of which the principal articles are boots and shoes. During the year ending June 1, 1855, there were made in this town 552,807 pairs of boots, and 1,265,317 pairs of shoes, valued at \$3,167,855, and employing 2,417 males and 691 females.

ABINGTON, **Mrs. FRANCES**, an English actress, born in 1731. Her maiden name was Barton, and her father was a common soldier. She was employed as a child in running errands. One of her places was with a French milliner, where she picked up the language. Her first appearance as an actress was on the boards of the Haymarket in the character of Miranda in the *Busybody*, August 26, 1755. As she was coldly received she went to Dublin. She married Mr. Abington, her music master, from whom she separated in a few months. At Dublin she was very successful. The fashionable theatres were deserted for the less reputable house in Smock alley where she was to be seen. Her head-dress became the rage, and was adopted by the world of fashion in Dublin. She remained a great favorite in Dublin until Garrick in 1765 invited her over to London, where she soon became the first comic actress of the day. She bade adieu to the stage on the 12th April, 1799, and died in Pall Mall, March 4, 1815, leaving a legacy to each of the theatrical funds.

ABINZI, or **ABINZY**, also called **ABINKSK TARTARS**, the name of a Tartar community in Western Siberia, inhabiting the district of Kusnetak, in the government of Tomsk, about 600 miles from Tobolsk. They call themselves *Abakar* (the Tartar term for Fathers). They support themselves by the rearing of cattle

fishing, the melting of iron, agriculture, and the chase. During the summer they camp out in tents, in winter they live in huts which in appearance are perfectly subterranean. They are divided into several *aimaks* or tribes, but pay only a small tribute. Formerly they inhabited the banks of the Tom near Kusnetak, but in order not to be driven farther to the north by their neighbors the Teleoutes, they ascended the Tom to the high mountains on the north of the lake of Tletaki, and settled in their present locality. They are in appearance, manners, and character like the Teleoutes, but less fierce and warlike.

ABIPONIANS, a tribe of South American Indians who inhabited the district of Chaks in Paraguay, but now occupy the territory lying between Santa Fé and St. Jago. Our accounts of this singular people are mainly derived from Dobrizhoffer, who lived among them seven years at the end of the last century. These volumes were translated from the German into English by Mr. Southey in 1822. The whole tribe at that time did not number above 5,000. They practised tattooing. The men are of tall stature, good swimmers, and expert horsemen. The women practice infanticide to a great extent, but suckle those infants they permit to live, for the space of two years. In counting they can go no further than three.

ABISBAL, HENRY O'DONNELL, a celebrated Spanish General of Irish descent, born 1770, died 1834. He fought against the French at the village of Abisbal, and compelled the surrender of one of their columns under Schwartz. From this action he took his title. After the restoration of Ferdinand in 1823 he retired to France.

ABJURATION, OATH OF, by which a subject of the British sovereign utterly renounces any obedience or allegiance to any other person claiming or pretending a right to the crown of Great Britain. This abjuration oath containing the words "upon the true faith of a Christian," has the effect of excluding the Jews from Parliament, and led, on the occasion of Baron Lionel Rothschild being elected member for the city of London, to the agitation of the Jewish Disabilities Question. It is also, according to 25 Charles II., an oath abjuring particular doctrines of the Church of Rome. The abjuration of heresy is the public recantation of any doctrine as false, impious, and wicked. In a remote period of English history it was also an oath taken by a felon who had fled to a church or to any other sanctuary, whereby he solemnly bound himself to leave the kingdom forever.

ABKASIA, OR ARASIA, the country of the Abkasians, a warlike tribe to the N. W. of the Caucasus, on the Kouban. They are often confounded with the Tcherkesses, another tribe in the same district. They are descended from Greek colonists, and prefer a life of rapine and adventure to any other. Formerly, it is said, the Mamelukes were recruited from them. The women are handsome, and sometimes are passed off for Circassians. They are divided into several

distinct tribes, six of which, with 5,400 warriors, own a doubtful allegiance to the Russians. The remainder are under Turkish suzerainty. The rights of property among these people are curious: each individual takes up annually what land he pleases and crops it for the year; terrible famines sometimes ensue from so irregular a course of cultivation. They grow maize and rye only. The vine grows wild, and from it they make a kind of brandy; apples, pears, apricots, figs, and various other fruits, also grow wild and attain considerable excellence. The domestic animals, of which they have considerable numbers, find their own food, and little care is taken of them except in severe weather. All draught work is done by oxen, horses being bred for the saddle only. The sheep and goats are good, but the wool is very inferior, no pains being taken with the animals. The forests are very extensive, and contain noble timber; oak, pine, beech, chestnut, &c., attain a vast girth. The natives carry on a small trade in honey, bees-wax, and silk. They have no manufactures excepting arms, the iron for which they buy of the Turks. They invariably go armed to the teeth. They are engaged in perpetual warfare among each other, and with their neighbors, and all prisoners are sold to the Turks. They are, nevertheless, poor soldiers, being unable to sustain any lengthened engagement.

ABLAIKIT (the convent of Ablai) is situated on a river of the same name, which flows into the Irtysh, lat. 49° 20' N. long. 83° 5' E. These buildings, now in ruins, were constructed by Ablai, one of the Mongol Khans, about the middle of the 17th century. Ablai was forced to desert them in haste. In the beginning of the last century, some Russian soldiers came upon them. One of the buildings was a Buddhist temple, containing letters cut on boards, manuscripts on black paper, and on the interior bark of the birch-tree. There was an interesting collection of idols, mostly in fragments. As no one in Russia could translate the literary remains, Peter the Great sent them to Paris. The Parisian savans sent back a pretended paraphrase, which was worse than worthless, as they did not know a syllable of the language. Modern science has discovered that they are in Tangut, and consist, for the most part, of portions of the Buddhist creed, and sacred books.

ABLANCOURT, NICOLAS PERRON D', a member of the French Academy, born April 5, 1606, at Châlons-sur-Marne, died Nov. 17, 1664, who obtained some literary reputation by his translation into French of Tacitus, Cæsar, and other classical writers. He began also to translate Marmol's "Description of Africa," which was completed in 1667 by Richelet. His election to the French Academy took place in 1637. In 1662 Colbert proposed him as historiographer to Louis XIV., but the king refused on theological grounds, as D'Abancourt was a Protestant.

ABLATIVE, the sixth case of Latin nouns. It is derived from *ablatus*, participle of *abferre*, to take away.—*Ablatives absolute*, in grammar, is a noun with a participle agreeing with it in the ablative case, and standing independent of the main sentence. In English Grammar it is usual to call such a construction an independent nominative. It is more frequent in Latin.

ABLE, THOMAS, chaplain to Queen Catharine, consort to Henry VIII., was hanged, drawn, and quartered, at Smithfield, in 1540. He wrote a treatise in defence of the Queen, and against Henry's proceedings for a divorce. In 1534 he was prosecuted for being mixed up in the imposture of the Holy Maid of Kent. On her account Able was charged with a treasonable offence, and met with the above-mentioned fate.

ABLECIMOFF, ALEXANDER, a Russian writer, born at Moscow in 1784, is the author of the first national vaudeville in the Russian language. The piece was called the Miller, and is a life-like picture of Russian manners.

ABLUTION, a religious ceremony in most portions of the world. In the Catholic church it means the cleansing of the cup after the Lord's Supper, and is applied to the wine and water with which the priest, who consecrates the host, washes his hands.

ABNER, the son of Ner, and cousin of Saul, and the general of his troops. He was greatly loved by Saul, and faithful to him until his death, and then transferred his allegiance to Ishbosheth, Saul's son, to whom he preserved the throne of Israel for seven years against the rival claims of David, who kept his state of Judah at Hebron. At length, Ishbosheth having accused Abner of improprieties with one of his father's concubines, Abner went over to the cause of David. But the aid he might have rendered to that king was cut off by his sudden death, at the hand of Joab, David's captain, who was probably moved with jealousy at the influence of so powerful a rival for the king's favor, though Joab alleged the object of the assassination was to avenge the death of his brother Asahel. David was, or, as intimated by Josephus, pretended to be, deeply afflicted at the death of Abner, and lamented him in a sort of funeral dirge. (2 Sam. iii.)

ABO, a city of Russia in Europe, built on both sides of the Aurajoki, not far from where it flows into the Gulf of Bothnia, and containing 13,050 inhabitants, was founded in 1157 by the Swedes, and was the capital of Finland until 1819. The bishopric established here in the 18th century was raised in 1817 by the Russian government to a Protestant archbishopric. In 1827 the greater part of the city was destroyed by fire, including the university buildings, and the library containing 40,000 volumes. The university was rebuilt in Helsingfors, the new capital. Abo is still the seat of considerable trade.—The **TREATY OF ABO**, concluded at Abo, Aug. 17, 1743, between Sweden and Russia, was the termination of the struggle between those

two countries, commenced in 1741, at the instigation of France, in order to prevent Russia's participation in the war of the Austrian succession. During this contest, the blunders of the Swedish generals enabled the Russians to take possession of the whole country. The Empress Elizabeth offered to restore the greater part of the territory thus seized, on condition that Sweden should elect Prince Adolf Friedrich of Holstein-Gottorp successor to the throne. This demand Sweden complied with July 4, 1743, and the treaty of peace was afterward signed.

ABOARD, the inside of a ship. To go aboard is to enter a ship. To fall aboard of, is said of one ship's encountering another.

ABOMEY, the capital of the kingdom of Dahomey, is situated in lat. 7° 59' N. long. 1° 20' E. It is about eight miles in circumference, surrounded by a ditch, and entered by six gates, all of which are ornamented with human skulls. It contains 80,000 inhabitants, two large and several small markets, three royal palaces of two stories each, and several large houses for the ministers. Within the palaces are barracks, in which the 5,000 Amazons of the king's army live in celibacy, under the care of eunuchs.

ABOO, a celebrated mountain of Rajpootana, in India, rising to an elevation of 5,000 feet above the sea level. Its elevations and platforms are covered with temples, shrines, castles, and tombs. Pilgrims come thither from every part of India.

ABOO ARISH, a narrow strip of land lying on the borders of the Red Sea, with a capital of the same name. It is very dry and barren, and would be utterly sterile but for the periodical inundations of rain from the mountains.

ABOO SAMBOOL, **IRRAMBUL** or **ERSAMBUL**, a place in Nubia, on the west side of the Nile, N. lat. 22° 22', remarkable for two of the most perfect specimens of Egyptian rock-cut temples. The smaller one was first described by Burckhardt. It stands twenty feet above the level of the river, not buried in sand, and is almost as complete as ever it was. The larger temple is much more splendid. Belzoni, in the year 1817, with the assistance of Captains Irby and Mangles, succeeded in finding the entrance; before the top of the door was reached, they had to clear away 81 feet of sand. The width of the front is 117 feet, height 86 feet. There are four enormous sitting Colossi in front, which are the largest in all Egypt or Nubia. The dimensions of one of these figures are 25 feet 4 inches across the shoulders, face 7 feet long, nose 2 feet 8 inches; the whole height as it sits is about 50 feet. They were formerly painted. The name and title of Rhameses are found in many parts of the temple, and the usual pictures representing a conqueror triumphing over his enemies.

ABORIGINES, the primitive inhabitants of any island or continent, such as the Red Indians of America, and the native Australians. The

Greeks employed the term *Autochthones* in this sense. *Aborigines* is a word of Latin origin (*ab origine*), and signifies, literally, men who have been settled on the soil from the beginning of time.

ABORTION, the artificial destruction of a *fœtus*. By the common law of England, a woman procuring abortion of a *fœtus* which had quickened, was held guilty. No provision was, however, made for other parties, who had, either with or without her connivance, been instrumental in perpetrating a similar crime. By the present statute law, however, the physiological error once prevalent with respect to quickening is amended, and all persons who procure miscarriage or abortion are guilty of felony. The laws of the United States and France are to the same effect. The simple act of abortion is alone sufficient, the felonious intention being proved thereby; accordingly, medical men, who, to save the life or health of the mother, might find it necessary to extirpate a *fœtus*, are not held guiltless by the law, although in the matter of punishment the state may take cognizance of their benevolent intentions. Among the ancients, and among modern semi-barbarous nations, abortion was and is an habitual practice. The Chinese do not even need to commit abortion, for with them child murder is said to be not uncommon.

ABOUKIR, a village and castle in Egypt, on a point of land about twelve miles from Alexandria. It is near the site of the ancient city of Canopus, although the shifting of the sands and the alteration in the shore make the precise spot uncertain. It is a refuge for vessels which cannot make the port of Alexandria. Owing to a shoal there is no anchorage for large vessels, which are obliged to lie out in the open roadstead, while the entrance to the road is very narrow. This bay is famous for the great naval engagement which took place between Nelson and the French fleet under Brueys, Aug. 1, 1798, known as the battle of the Nile. A large fleet with Bonaparte and an army on board had sailed from Toulon, destination unknown, and Nelson was sent in chase by Lord St. Vincent, who commanded the British fleet blockading Cadiz. After much disappointment, Nelson found the French fleet moored in the bay of Aboukir. The troops had been landed, and Brueys was ordered by Napoleon, for reasons that never have been satisfactorily explained, to wait his further orders on the coast. Brueys was a man of undoubted bravery, but the crews were deficient in experience and seamanship; his advice was against delay, and he was in anxiety to return to France. He had anchored his fleet close in shoal water, in a semi-circle, leaving no room between the vessels, and counted himself perfectly secure. But Nelson determined to break the line, and remarked that where the French ships could swing to their anchors, the British could swim. The French had thirteen ships-of-the-line and four frigates, carrying 1,197 guns and 11,280 men. The Eng-

lish had the same number of liners, and one 50 gun ship, carrying 1,012 guns and 8,068 men. Captain Foley, in the *Goliath*, went in first, and going between the leading French ship and the land, drifted alongside the *Conquerant*, while Capt. Hood, in the *Zealous*, anchored inside the *Guerriere*. The battle soon became general, and Nelson, in the *Vanguard*, anchored outside the enemy, within half pistol shot of the *Spartiate*. The *Vanguard* received a tremendous fire, and her forward guns were cleared three times. Nelson received a severe wound in the head from a piece of langrage. The Admiral was carried into the cock-pit, and when the surgeons ran to him, he refused to be taken out of his turn. It was soon discovered that the wound, though severe, was not dangerous, and having had it sewed up, he was carried into his cabin. The French flag-ship *L'Orient* now blew up with a terrific explosion, which checked the fury of the combat for a time, but it was renewed and lasted till day break. Only four of the French vessels escaped. The British casualties, in killed and wounded, were 895. 3,105 French were sent on shore, including the wounded, and 5,225 perished. The French guns were fought desperately, and both officers and men displayed heroic bravery. The lower deck guns of the *L'Orient* were manned to the very last moment, the sailors refusing to save themselves by quitting their posts. Brueys, when mortally wounded, continued his directions to the last. Thevenard and Blanguet Duchuyra, wounded to the death, did the same, and Dupetit Thouars, after both thighs and one arm had been carried away, continued to incite his men, and called on them never to surrender. Casabianca's son of eleven years old preferred to die by the side of his father's corpse, rather than be saved. Villeneuve's timely retreat saved the remnant of the fleet; yet his conduct, like that of the Spartan survivor, was blamed.

ABOUT, EDMOND, a young French novelist, whose first performance created a sensation in Paris in 1854-'55. A novel called *Tolla*, founded in part on facts contained in a comparatively unknown Italian pamphlet, *Vittoria Savorelli*, caused him to be denounced by an influential Review as a literary pirate. Defending himself with a pithiness equal to the harshness of his assailants, he furnished convincing evidence that he had never denied his obligation to the Italian book, and by publishing other works, triumphantly demonstrated that he was possessed of some talent of his own. *Le Roi des Montagnes*, *les Mariages de Paris*, and *Germains*, appearing in quick succession, were favorably received by the novel-reading community, while a sketch of the present situation of Greece, *La Grèce contemporaine*, and a review of the exhibition of fine arts in Paris, called *Voyage à travers l'Exposition des Beaux Arts*, won approbation from competent judges. His principal productions have been translated and reprinted in this country.

ABOVILLE, a name common to three gen-

erals of artillery in the time of the French Republic, Empire, and Restoration. I. FRANÇOIS MARIE, father of the two others, was born at Brest, Jan. 23, 1730, and died in 1819. He served in the American War, and all the governments that intervened between Louis XVI. and Louis XVIII., both inclusive. II. His eldest son, AUGUSTE GABRIEL, born 1778, died 1820, served in Spain. III. The youngest, AUGUSTE MAHE, was born in 1776. He lost an arm at Wagram.

ABRACADABRA is a magical word, derived from Abraxas, which, inscribed upon a square piece of paper or linen, was supposed to possess some talismanic properties.

ABRAHAM (written ABRAHAM until the promise of Isaac), Father of the Faithful, son of Terah, and descendant of Shem, born B. C. 1996, in Ur of the Chaldees in Eastern Mesopotamia. By a revelation from God to him, his father's family were converted from idolatry to monotheism; and being warned to leave the country, came and dwelt in Charran in western Mesopotamia until Terah died (Acts. vii.), when Abram, again warned of God, departed from Charran in his 75th year, taking Lot with him, and after wandering for several years, during which time he retired to Egypt on account of a famine in the country where he was feeding cattle, finally divided the land with Lot, giving Lot his choice, by which arrangement Canaan fell to Abram, who came to Mamre and dwelt there. There Ishmael was born of Hagar, and 13 years later, when Abram was 99 years old, Isaac was promised, his own name changed to Abraham (father of many), that of Sarai to Sarah—and the rite of circumcision instituted. After the birth of Isaac, Ishmael was expelled with his mother from the Abraham household, and the children born later of Keturah, Abraham's second wife, shared the same fate. Thus, though the promise embodied in the change of his name was literally fulfilled in the posterity of his eight sons, yet in its spiritual aspects it seems to have been confined to Isaac (Gen. xxi. 12), as in his line the families of the earth should be blessed. (Gen. xii. 3.) The apostle calls all who believe in Jesus and do the works of Abraham, his children. Abraham died at the age of 175 years, and was buried by Isaac and Ishmael in the cave of Machpelah, with Sarah his wife. With him the Old Testament history properly commences, the rest being merely introductory to that grand movement which begins in Ur of the Chaldees and ends with the final destruction of the Jewish polity and people.

ABRAHAM A SANOTA OLARA, a celebrated German preacher, whose proper name was Ulrich von Megerle, born June 4, 1642, at Krähenheimstetten, in Swabia, and died at Vienna Dec. 1, 1709. He was an Augustine monk, and preached such witty and powerful sermons, that the German Emperor called him to Vienna and appointed him court chaplain. The titles of his treatises characterize him, "Hotch Potch,"

"Judas the arch knave," "Fie and shame on the world," "Austrian Thanksgiving." His language is a good illustration of the state of the High German in his day.

ABRAHAMITES, an order of monks exterminated by Theophilus in the 9th century. This term was also applied to a body of Bohemian country people, who, in 1782, trusting to the edict of toleration, published by Joseph II., separated from the Catholic church, and set up a sort of Deism which they claimed to be the original creed of Abraham, whence their name. They took from the Bible nothing but the Lord's Prayer and the Ten Commandments. In 1788, they were expelled from their habitations by military force and driven into Galicia and Hungary, where they were compelled to serve on the frontiers. This harsh treatment had the desired effect. The propaganda was stopped, and many returned to the Catholic church.

ABRAHAM MEN, a class of impostors in England, who, in former times, before the establishment of charitable lunatic asylums, would pretend to be mad, in order to get alms. They are described in Decker's *English Villanies*. Poor Tom, in Shakespeare's *King Lear*, may be taken as an example of this class of persons. To sham Abraham is a cant expression to which their practices gave rise.

ABRAHAM OSHKI, a Portuguese Jew, of the 16th century, who translated the Bible into Spanish. It was published at Ferrara, in 1558, and in Gothic type. This edition is now very rare, but is still esteemed by both Jews and Christians in Spain.

ABRAHAMSON, WERNER HANS FRIEDRICH, an æsthetic critic and antiquary, born in Schleswig, in 1744, died 1812. Having attained the rank of captain in the Danish artillery, he retired in 1787 from active service, and devoted himself to a scientific and literary life. — JOSEPH NICOLAI BENJAMIN, lieutenant colonel in the Danish army, son of the former, born Dec. 6, 1789, introduced into Denmark the Bell and Lancasterian method of teaching, with which he had become acquainted while serving as captain in the general staff of the Danish auxiliary corps in France.

ABRAMSON, ABRAHAM, medallist, born of Hebrew parents, at Strelitz, in 1754, died in 1811. On account of his great proficiency in his art, he was appointed medallist to the king, and subsequently, director of a royal medal-mint. He executed a series of medals of eminent savans, which were much admired, and exerted a remarkable influence upon the development of numismatic art in Prussia.

ABRANTES, a town in Portuguese Estremadura, on the Tagus, 80 miles from Lisbon, with about 5,000 inhabitants. It is of little importance except as a military position, commanding one of the frontier roads from Spain into Portugal. The Portuguese made a brave defence here against the Spaniards, and Junot, on his celebrated march from Spain, seized

on this place, fortified it, and pushed on with 1,400 grenadiers for Lisbon. This exploit earned him his title.

ABRANTÈS, MARSHAL DUKE OF. See JUNOT.

ABRANTÈS, DUCHESS OF, born at Montpellier, Nov. 6, 1784, died at Chaillot, near Paris, June 8, 1838. She was a woman of considerable literary acquirements, and her life is remarkable for strange vicissitudes. She was daughter of M. de Permon, a public official in the city of Metz, who had married Pannonia Comnena, a lineal descendant from the Imperial Byzantine family of the Comneni. She received an excellent education from her father and brother, who was a member of the administration under the consulate. M. Permon, who had been born in Corsica, was an early friend of the Bonaparte family. After Junot's return from Egypt, covered with laurels for his bravery, he married Mlle. Permon. Her own family connexions and her husband's favor with Bonaparte, soon introduced her to the highest society of the French metropolis, and she received the honorary appointment of lady of honor to the Empress mother. Upon Junot's appointment as governor of Paris, her saloons were the chosen resort of wit and fashion. She accompanied her husband on his Spanish campaign. The fall of the Emperor, her husband's death, and the restoration of the Bourbons, brought serious reverses upon her. She lost the greater part of her fortune; and literature, which she had previously cultivated for pleasure, she now followed as a means of livelihood. But the admirable productions of her pen were unremunerative, the brilliant denizen of the Imperial court fell from one depth to another until she reached a state of absolute destitution, and the heiress of the Comneni finished her days at Chaillot, near Paris, in 1838, a dependent on public charity. She left behind her sons and daughters, one of whom, Mad. Constance Aubert, and her son Napoleon d'Abrantès, are both engaged in literary pursuits. Her works are written in an easy and engaging style. Her chief book, *Memoires de la Duchesse d'Abrantes*, is an authority on the Court of Napoleon (18 vols. Paris).

ABRAXAS, a mystical word compounded of the Coptic words *Abrak* and *Sax*. Some writers give it a Persian origin. In either sense it is taken by mystics to signify the Supreme Being. Abraxas is also the name of those stones on which may be found certain lines, figuring to the imagination heads of various animals, or other symbols, which were valued as amulets, and supposed to be endued with miraculous qualities. Upon these the word Abraxas was inscribed, and thus the charm of the talisman being completed, these gems were in great repute among the Basilians and other early heretical sects whose tenets favored Gnosticism. In imitation of these natural gems, artificial ones were manufactured. They are found in Syria, Egypt, and Spain, and are to be seen in many museums.

ABRIAL, ANDRÉ JOSEPH D', a French judge, born at Annonay, March 19, 1750, died at Paris Nov. 14, 1828. He was active in compiling the Code Napoleon, and preserved his situation through all changes.

ABROLHOS, or Santa Barbara islands, a group of four small uninhabited islets, situated on an extensive shoal near the coast of Brazil, in lat. 17° 58' S. long. 38° 42' W. In the breeding season they are covered with immense flocks of birds; turtles may be found there at times, and fish are always plentiful. On the shoals, garou-pas, a fish like cod, are taken in large numbers.

ABRUZZO, the most northern division of the dominions of the King of the two Sicilies, is divided into three provinces, Abruzzo Citra, and Abruzzo Ultra, I. and II. These provinces contain 4,899 square miles, with 803 communes, inhabited by 825,940 souls, according to the census of 1845. The mountains of Abruzzo are the home of a race of shepherds, who are clothed primitively, in untanned sheepskins. The valleys and lowlands are very fertile, and raise much wheat, rice, fruits, abundance of saffron, oil, and tobacco. The women work harder than the men at agricultural labor. The inhabitants are in a very backward condition. They live in dirty huts, shared by the donkey and the pig. The chief article of food is Indian meal, boiled in water and milk; wheaten bread is a luxury. They are musical, hospitable, superstitious, and revengeful; physically, they are a fine race of men, and make some of the best soldiers in the Neapolitan army. They never hindered the Germans, French, or Spaniards from marching into Naples until, in 1799, they inflicted terrible injuries upon the French army of invasion.

ABSALOM, the third son of David. He early entertained ambitious designs upon the throne, to which he had some show of claim, from his royal descent on both sides. Instigated, possibly, by his ambition, but ostensibly by the rape of Tamar, he slew Amnon, his eldest brother, and raised a rebellion, and obtained possession of the throne. By the adroit management of Joab, he was overthrown and slain. With all his want of filial affection, David loved him, and mourned deeply at his death.

ABSALON, or AXEL, archbishop of Lund, and bishop of Roeskilde, also Minister and General of the Danish king, Waldemar I., born 1128, died 1201, was educated at the University of Paris. He put down the Vendish pirates, who infested the Baltic, followed them up to their island home of Rügen, destroyed the temple of their god Svantovit, at Arkona, and forced them to receive Christianity. The code of Waldemar was partly his work, as also the ecclesiastical code of Zealand. On his encouragement, Saxo Grammaticus composed his History of Denmark, the first continuous Scandinavian history ever written. Later he overcame the Pomeranian prince, Bogislav, and made him do homage to the Danish king. He is, perhaps, chiefly memorable for having constructed a little fort, named after him, Axelhuus, for defence

against pirates. Round this fort the beautiful capital of Denmark gradually reared itself. Absalon's grave was opened in 1827, and his staff and ring are still preserved.

ABSCESS (Lat. *abscedere*, to separate or secede), an inflammatory or purulent tumor. An abscess is a collection of pus, resulting from inflammation of the parts where it originates. The purulent matter is a degeneration of the fluid exuded from the capillary vessels of the parts inflamed, and sometimes a degeneration or corruption of the tissues of the parts involved. There are three kinds of swelling or tumor commonly called abscess, the "inflamed," the "chronic," and the "congestive." In the first, the swelling occurs in the locality inflamed, the parts being painful, red, and hot, and the pus confined to the immediate vicinity. In the second, the inflammation is sub-acute or chronic, and the swelling painless, as in scrofulous tumors, and white swellings. In the third, the pus accumulates at a distance from the part diseased, burrowing between the tissues, and falling, by mere gravity, until it meets with resistance, and there accumulating, forms a swelling, irritates the neighboring tissues, and is thence called "congestive abscess." The pus arising from disease of the spine in the lumbar region, often burrows down into the groin, and there forms a large abscess or tumor, which might cause the uninitiated to believe that the true seat of the disease was where the swelling first appears. Abscesses may be formed in any part of the body, and are dangerous or not, according to the relative importance of the parts involved. When they occur in the limbs, or in parts of the external frame, they are seldom dangerous; but in the brain, or more important viscera, they are often fatal. Simple abscess is the most common, but sometimes they occur in different parts of the body at once, and succeed each other with pertinacious continuity for a long time. The size is sometimes small and circumscribed, as in sub-cutaneous tumors, sometimes very large, where great collections of purulent matter form between the muscles and the deeper tissues, displacing the vessels and the nerves, and causing much deformity in the surrounding parts. The treatment varies with the seat and cause of the disease. Most commonly the confined pus is let out by a surgical incision, but in scrofulous tumors, this is not always advisable, as dangerous complications may ensue. Setons, stimulating liniments, and medicines to promote absorption, and give tone to the whole system, are deemed more prudent in such cases.

ABSCHATZ, **HANS ASSEMAN**, Baron, a German poet, born at Würbitz, in Silesia, Feb. 4, 1646, died April 22, 1699, was educated at Liegnitz, Strasburg, and Leyden, after which he spent three years in travelling over the continent. After the death of Duke Georg Wilhelm von Brieg, 1665, he served as governor of the principality of Liegnitz, as delegate to the assembly of princes at Breslau, and as the ambassador of Silesia at the court of the em-

peror at Vienna. He finally retired from public life, and occupied himself until his death in the cultivation of his paternal domains.

ABSCISSA. See **ANALYTIC GEOMETRY**.

ABSENTEE, a term conventionally applied to landed proprietors absent from their estates.

ABSIMARUS, **TIBERIUS**, a soldier of fortune, who became emperor of the Byzantine empire, A. D. 698. In fear that the Emperor Leontius might bring him to a severe account for a reverse which he had experienced at the hands of the Saracens, he raised an army which proclaimed and made him emperor. He signalized his accession to the throne by slitting the ears and nose of Leontius, and throwing him into a convent; but in 705, Justinian II., long since dethroned, having been restored to power by the Bulgarians, used Absimarus as a foot-stool at the Hippodrome, and after the spectacle, beheaded him.

ABSOLUTE (Lat. *absolutus*, absolved, freed from all extrinsic conditions, complete in itself, and dependent on no other cause), a term much used in modern philosophy, especially by Schelling, Hegel, Cousin, and their followers. As used by them it stands opposed to the relative, for independent, unconditioned, self-existent being, or being in itself, which they contend is the primitive in all thought, and the ultimate in all science, and the object of immediate intuition. In their language the absolute means, or is intended to mean, the Infinite, God himself, regarded simply as pure being, *Das reine Seyn*. Sir William Hamilton denies that absolute and infinite are identical, and that in the sense of the infinite,—the unconditioned,—the absolute is an object of intuition. He confines all philosophy, therefore, to the finite, the relative, the conditioned. To think, he says, is to condition, and there is no intuition without thought. The absolute and relative can be thought only as correlatives, each connoting the other, and, therefore, only as conditioned. He is answered by those who profess the philosophy of the absolute, that, although the term may be used to express an idea different from that of the unconditioned, or the infinite, and although to think is, in a certain sense, to condition, yet the condition is, in the thought itself, always apprehended as the condition of the subject, never as the condition of the object. Certainly the finite can apprehend the infinite only in a finite mode or manner, but to apprehend it even in a finite mode or manner is still to apprehend the infinite. It is not necessary to the reality of human knowledge that it should be adequate to the object, for if it were there could be no human knowledge at all. They reply further, that the relative is inconceivable without the absolute. What is not, is not intelligible; and since the relative is not and cannot be without the absolute, the conditioned without the unconditioned, there can be no intuition of the former without a simultaneous intuition of the latter, nor are they intuitively apprehended precisely as cor-

relatives, each as conditioned by the other; for in the intuition itself the absolute is apprehended as the cause or creator of the relative, the unconditioned as conditioning the conditioned. There is another controversy even among those who are termed ontologists, and who profess to find in the intuition of unconditioned being the principle of philosophy,—whether the pure being, the absolute, the unconditioned being, asserted by Cousin and the German school, and which they identify, or attempt to identify, with God, is real, living being, real living God, or after all only a logical abstraction. A class of modern philosophers, among whom may be mentioned Vincenzo Gioberti, as the most distinguished, maintain that, as the terms the absolute, the infinite, the unconditioned are evidently abstract terms, the idea they express is and can be only a logical abstraction, formed by the mind operating upon its own conception, and eliminating from them all conception of space, time, bounds, conditions, or relativity. In this case, they say it is no real being, but a simple generalization of psychological phenomena, and as far removed from the *ens necessarium et reale*, the real and necessary being of the schoolmen, the real living God, in whom the human race believe, as zero is from being something. Hence, though for another reason, they refuse with Sir William Hamilton, to concede that we have intuition of the absolute, the infinite, or the unconditioned, but assert, in opposition to him, that we have immediate intuition of that which in reality is absolute, infinite, and unconditioned. To suppose that we have intuition of being, or God as the absolute, would be to suppose that we know the abstract before the concrete, the possible before the real, and therefore that reflection or reasoning precedes instead of following intuition. They dissent, therefore, from Schelling, Hegel, and Cousin, and deny that we have immediate intuition of the absolute, that is of God, real and necessary being, as the absolute, and maintain that while we have immediate intuition of that which is absolute, infinite, unconditioned, we conceive the intuitive object as such only by a process of reflective reason,—the process by which the human mind demonstrates that the object of its intuition is God.

ABSOLUTION, in the Roman Catholic church the act of the priest in pronouncing the pardon and remission of the sins of a penitent. Absolution *in foro interno*, is a part of the sacrament of penance, in which the guilt of mortal and venial sin is remitted. Absolution *in foro externo*, is the remission of certain ecclesiastical penalties, for example, excommunication. There are also precatory forms of absolution, which are used during the divine service. Short prayers at the end of each nocturn in the office of matins are also called absolution. In the morning and evening prayers of the English and American Episcopal churches, absolution is a formula of publicly praying for,

or declaring the remission of the sins of the penitent, used only by a priest; also in the office for the Visitation of the Sick, of the church of England, an authoritative declaration of the pardon of sin, pronounced over a penitent, after private confession. Similar forms of absolution are also used in the Lutheran church.

ABSOLUTISM, in politics, irresponsible, unlimited sovereignty, whether in the hands of one or of many, in contradistinction from that which is restrained by fundamental laws, or exercised in coöperation with the representatives of the people.

ABSOROKAS, or Orowa, an Indian tribe, found in the Missouri, just above the Blackfeet, with whom they are cognate. They are said by their agent to have about 1,000 warriors, and have since the last census deteriorated in every respect. They subsist entirely by the chase, and are altogether unfamiliar with the habits of civilized life. Their language has many Pawnee, and a few Dacotah words.

ABSORPTION (Lat. *absorbeo*, to imbibe, or suck up, as the parched earth sucks up the falling rain, or as a sponge imbibes water). Absorption, in the human body, is a term commonly applied to the functions of a special set of vessels called absorbents or lymphatics; the word, however, has a more general meaning in physiology, as we shall see by a careful analysis. The whole body, in one sense, is an absorbent of external matter for nutrition. It absorbs matter in the solid, the liquid, and the gaseous forms; air in the lungs, food, and water in the stomach and intestines. The physiological life of the body is one perpetual round of ingestion and egestion, absorption and excretion. The body is composed of organs, differing in structure, form and function, as the heart and lungs, brain and nerves, bones and muscles, skin and mucous membranes, but all coöperating to one end, the health and equilibrium of the whole organism, as an instrument of action and a habitation for the soul, which is the woman or the man. And as the body is composed of different organs, so each organ is composed of various tissues. The lungs, for instance, consist of mucous membrane, parenchymatous tissue, capillary vessels, and serous membranes, all differing in structure, quality, and functions; and each of these again is formed of minute cells, differing to some extent in different parts of the same tissue, as in different layers of the mucous membrane, and in the different tissues of each organ. The minute cell of every single tissue, or simple layer of a compound tissue, has a form and structure and peculiar property of its own; it is a little world of atoms, too minute for visual analysis, but the cell or globule is visible itself under a microscope; this cell in its own form and constitution is as independent as a special organ in the body, or a planet in a solar system; and, perhaps, in microscopical proportion, as far removed from its contiguous neighbor, as the heart is from the lungs, or the

moon is from the earth, and the earth from the sun. The cells of bone differ in form and constitution from the cells of fibrous tissue and of muscle; those of the glandular tissues differ from those of the medullary substance of the brain; and those of one kind of glandular tissue differ from those of another, as the cells which secrete milk in the breast differ in form and function from those which, in the liver, secrete bile. Each minute cell, then, in the organism, is a little world of atoms, a perfect individuality, absorbing from the blood such food only as suits its own peculiar constitution, and returning in exchange its own waste matter, to be finally eliminated from the body. And, moreover, each cell is permanent in structure, from the beginning, as the complex organs are, the number of cells in each organ being as constant as the number of organs in the body. And as the organs enlarge with the growth of the body, from the stage of complete formation in the womb until the apogee of adult life, so the cells enlarge in each tissue of an organ; if the body increase ten or fifteen fold in bulk and weight, from birth to adult life, and shrink again with extreme age, the cells increase respectively in a like ratio of size and weight, and shrink again with age, the number being constant in the organism. The size then of an individual cell depends partly on the growth of the whole body, and partly on the relative dimensions of cells which form the elementary constituents of particular tissues. In some tissues the elementary cells are much larger than in others, the diameters varying from the 1,200th to the 6,000th of an inch. The forms of cells are also various, being more or less spheroidal, conical, flattened, polyhedral, and irregular in shape. They all, however, act as independent individualities in their physiological operations of nutrition, absorption, and elimination of waste atoms, coöperating with their neighbors and associates in the collective functions of the body. These diameters of cells may seem incredibly minute, but the diameters of capillary vessels are, in some cases, not more than one-3,700th of an inch, and the diameters of sympathetic nerve fibres have been estimated at one-6,000th of an inch. This is the infinitely small aspect of ingestion and egestion in each cell, as the first view of ingestion and egestion in the whole body was, comparatively, the infinitely large aspect of structure and function in a cell or rotund unity of larger type, and more complex variety of organism. The first apparent organ of absorption in a minute cell is the integument, and so in the whole body, the skin and mucous membrane; air is absorbed in the lungs and on the whole external surface of the skin; food and water by the mucous membrane of the alimentary canal. This, however, is but an appearance, or rather, it is really a first stage only of absorption; for, below the surface of the mucous membrane and the skin, lie, thickly scattered, filaments or webs of minute capillary vessels, some appertaining to the

veins and arteries and others to the absorbents or lymphatics. The absorbents, properly so called, are a peculiar set of vessels ramifying most minutely throughout every portion of the organism, where the capillaries of the veins and arteries are not alone sufficient to absorb the substances presented to them on the surfaces with which they are connected. In the lungs the gases are absorbed from the air, directly, by the capillaries of the pulmonary vessels; in the stomach, no absorbents proper have been yet discovered, and the liquids which are there absorbed, are taken up directly by the veins; the substances which pass off from the stomach into the intestines, by mingling with the bile and pancreatic fluid, acquire a milky color and consistence, technically termed chyle, and this is rapidly absorbed by the lacteal vessels in the walls of the intestines. These absorbent vessels are called "lacteals," because they were first discovered full of a milky fluid, which was traced up to the "thoracic duct," which duct delivers its contents into the subclavian vein on the left side of the neck, there to mingle with the blood returning to the heart, and thence into the lungs for a supply of oxygen, before it is returned to the heart again for general circulation. The lacteals absorb chyle from the walls of the intestines to supply the blood with contributions from the food, and for a length of time these were the only absorbents known; but other vessels of a similar thin pellucid structure were afterwards discovered, in many other parts of the body; and as these were always found distended with a watery and colorless fluid called lymph, the delicate vessels were thence called lymphatics. These absorb waste matter from the organs and convey it to the blood, as the lacteals convey chyle; further observation showed that the lymphatics and the lacteals belong to the same order of absorbent vessels, and these are now classed altogether as one system, the main functions of which are those of absorption. They form, however, but a portion of the vascular system; a sort of auxiliary or sub-venous system; and as the capillaries of the veins absorb air in the lungs, and water in the stomach, and probably waste matter everywhere, the term absorbent does not belong exclusively to the lacteal and lymphatic vessels, although these alone are usually called absorbents. In physiology, absorption is defined to be, that function by which nutritive or other matters are taken up and carried into the circulation. There are two great divisions of this function: 1st, *external absorption*, or the absorption of composition, which obtains from without the organs the materials intended for their construction; 2d, *internal absorption*, or the absorption of decomposition, which takes up from the organs the old or effete matter that has to be replaced by new. By external absorption is meant that which takes place from the external surface of the body, including the skin and the mucous membranes of the di-

gestive and the respiratory passages. By internal or interstitial absorption is meant that which takes place from the component tissues of the organs themselves and from the interior of shut sacs. Absorption, in a general sense, pertains, first, to the skin and mucous membranes; and secondly, to the capillary vessels of the whole vascular system, lymphatics, veins, and arteries. In a special sense, absorption pertains to the cells which form the elementary structure of each tissue, but this is generally called nutrition. Ingestion and egestion, absorption and secretion, nutrition and decay, are the general terms by which the same contrasted operations are designated, in their several stages, from the grosser to the more minute degrees of transformation and translation in the human organism. Absorption proper, irrespective of the capillary vessels which ramify in almost every portion of the body, is mainly effected in its first degree, by the skin and mucous membranes which form the external surface of the whole frame. The external skin is an active absorbent. It has been proved by experiment that the human hand is capable of imbibing an ounce and a half of warm water in fifteen minutes, and the whole body at this rate would absorb six or seven pounds of water in an hour. This is an important fact to sailors, who are sometimes wrecked and exposed for many days in a small boat at sea, without fresh water. Facts are recorded of a boat's crew thus exposed, being many days without fresh water, and almost dying of thirst, when suddenly a shower of rain wet their clothes thoroughly, and soon their thirst was quenched. The skin absorbed the water and relieved the thirst. Learning by experience, when thirst came on again, they dipped their shirts in the salt water and placed them next the skin; the water was absorbed without the salt with which it had been saturated in the ocean, and the suffering seamen found an inexhaustible source of relief from thirst, by thus absorbing moisture from the skin. Whether the saline matter held in solution is separated from the pure water by the action of the cuticle alone, or by the discriminating power of the absorbents, or by both in concert, is not exactly known; but the fact is curious, as salt water in the stomach would cause nausea and sickness, rendering absorption impossible from that surface of the mucous membrane. The cuticle being thicker on the outward skin than the epithelium on the surface of the mucous membrane, renders the operation of absorption slow, and the nerves below being less exposed to sudden shocks are not excited to revulsive action, but leisurely coöperate in the double action of separation and absorption. The function of absorption explains many things relating to health and disease. The effluvia of marshes and decaying vegetable matter, absorbed by the lungs, cause fever and ague of the worst description, and the exhalations of waste matter from animal bodies, as

well as other noxious gases diffused in the atmosphere, are dangerous to health when absorbed into the system. Exposure for a few hours to an atmosphere loaded with marsh effluvia of an intensely noxious character, may produce a violent fever, and even sudden death. A person suffering from small pox may so contaminate the air of a small room, where ventilation is neglected, that a healthy person entering the room and breathing the vitiated air for a short time, may, without contact with the body of the patient, absorb the poison from the air and die a victim to the condensed infection thus absorbed. Thorough ventilation, to dilute the vitiated atmosphere abundantly and frequently with pure air, is the proper method of preventing contagion in such diseases. Contact is not so dangerous as breathing the atmosphere of the infection undiluted with pure air. It should also be remembered that noxious agents affect the system more readily when laboring under debility, fatigue, or depressed spirits. The blood being partly vitiated by insufficient elimination of poisonous waste matter from within, is more easily saturated with noxious absorptions from without, and hence more caution is required from sickly than from healthy persons exposed to noxious vapors and exhalations. Absorption is more active at one time than another, in a healthy organism, and in some cases of disease it may be too inert. In such cases medicines are useful to promote absorption and effect a cure. By digitalis, arsenic, and other medicinal substances, judiciously administered, for several days, the absorbents have been stimulated, and large collections of water in different cavities of the body have disappeared in a few hours. A strong infusion of tobacco applied to the pit of the stomach, will cause nausea and vomiting, and arsenic applied to an external wound will be absorbed and act as if it had been taken in the stomach. Absorption therefore is a means of introducing both disease and the remedy.

ABSTINENCE, the partial or total deprivation of food. The phenomena which characterize life are connected with chemical changes occurring in portions of the blood or tissues of the body itself; the presence of the substances changed being hurtful to the body, they are eliminated from it by the various organs of excretion. This constant loss demands an equivalent supply. If the supply be withheld, the chemical changes still continue and the body wastes; the organism feeds upon itself, and when this is no longer possible, death ensues. The period during which a human being previously in good health can sustain life under a total deprivation of food and drink, is generally stated to be from eight to ten days. This varies however under different circumstances. Persons of mature age support abstinence better than those who are younger; women, from the greater development of the fatty tissues, and the less activity of the muscular and nervous

systems better than men; children in whom all the organic functions are exceedingly active, worst of all. A damp atmosphere which checks exhalation, a moderate temperature, and quiet of body, are favorable to the prolongation of life, while muscular exertion, a hot dry air, or a low temperature, tend to shorten the period during which it can be preserved. Fodéré (*Médecine Légale*) states that some workmen buried in a damp quarry, were extricated alive after a period of 14 days; while after the wreck of the *Medusa*, the sufferers on the raft, exposed to a high temperature, and constant exertion, at the end of three days, although they still had a small quantity of wine, were so famished that they commenced devouring the dead bodies of their companions. Water alone tends materially to prolong life. Dr. Sloane (*Med. Gaz.*, vol. xvii., p. 889) gives an account of a man 65 years of age, who was rescued from a coal mine after he had been immured 23 days, during the first 10 of which he had a little muddy water. He was so much reduced that he died three days after. The cases of starvation which have been best and most accurately observed, have been those in which the oesophagus has been gradually but at last completely obstructed by cancerous disease. In these cases the deprivation of aliment has been however but partial, the patient having been still imperfectly nourished by nutritive injections. By these means life has been supported for a period of five or six weeks. Mental alienation has a marked influence in prolonging the period during which life can be sustained without food. Dr. Willan has recorded a case in which, under the influence of religious delusion, a young man lived 60 days, taking during that time nothing but a little water flavored with orange juice. Dr. McNaughton of Albany (*Am. Jour. of Med. Scien.*, vol. vi. p. 548) gives a similar instance, during which a young man lived 54 days, on water alone. And in a case read in the French Academy (*Archives Génér. de Médecine*, tom xxvii., p. 180), a suicide lived 60 days on nothing but a few mouthfuls of orgeat syrup, before death put an end to his sufferings. Hysterical women often support abstinence in a wonderful manner; there is in hysteria, however, so much moral perversion, so great a tendency to deceit for the sake of exciting interest and sympathy, that all such cases require to be carefully and closely scrutinized. Most of the instances reported by the old authors, in which total abstinence was endured for months or even years, belong to this category, and are untrustworthy. The first effect of prolonged abstinence from food and drink under ordinary circumstances, apart from the sensations of hunger and thirst, is pain and distress in the epigastrium, which is relieved by pressure. This subsides after a day or two, and is succeeded by a sense of sinking and weakness in the same region; the thirst at the same time becomes more intense, and is thenceforth the principal source of suffering.

Emaciation soon begins to make rapid progress, the eye has a wild glistening stare, the senses are dulled, and the intellect enfeebled; the excretions become rare, scanty, and excessively fetid; the urine is high-colored, often causing a burning pain when passed; often towards the end diarrhoea comes on. The sufferer becomes exceedingly weak, the voice is low and hoarse, the gait slow and tottering, at length all exertion is impossible; the breath is offensive, the skin is covered with a dirty-looking secretion and exhales a putrid odor. Maniacal delirium often supervenes, and death, sometimes preceded by convulsions, ends the scene. When persons are immured by the falling in of a mine, quarry, &c., they seem subdued by the darkness, but in cases of starvation after shipwreck, or in travelling through an uncultivated country, the worst passions are aroused, and suspicion and ferocity add to the torments of hunger. A high temperature seems to aggravate these passions. "It is impossible to imagine," says M. Savigny, in speaking of the wreck of the *Medusa*, "to what a degree the circulation is quickened under exposure to the burning sun of the equator. The pain of my head was intolerable; I could scarcely master the impetuosity of my movement; to use a well-known phrase, the blood boiled in my veins; all my companions suffered from the same excitement;" and the terrible scenes of blood and crime which passed upon the raft, were doubtless owing largely to this cause. On examination after death the bodies of those dying of starvation are found to be almost bloodless, except the brain, which contains its usual quantity, and completely destitute of fat. The various organs, with the exception of the brain, are all reduced in bulk, and the coats of the intestinal canal especially are rendered thinner. M. Chossat (*Récherches Experimentales sur l'Inanition*) deprived a number of animals (birds and small mammals) of all sustenance, and carefully observed the phenomena that followed, and his experiments throw much light upon the subject of starvation. The temperature in all the animals was maintained at nearly the normal standard until the last day of life, it then began rapidly to fall; the animals, previously restless, now became quiet, as if stupefied, they fell over on their side, unable to stand; the breathing became slower and slower, the pupils dilated, the insensibility grew more profound, and death took place either quietly or attended with convulsions. If, when these phenomena were fully developed, external warmth was applied, the animals revived, their muscular force returned, they moved or flew about the room, and took greedily the food that was presented to them. If now they were again left to themselves, they speedily perished; but if the external temperature was maintained until the food taken was digested, and from the feeble condition of their digestive organs this often took many hours, they recovered. The *immediats* cause of death seemed

cold rather than starvation. The average loss of weight in the animals experimented on was 40 per ct., varying considerably in different cases, the variation depending chiefly on the relative amount of fat. Weighing the different tissues separately, and arranging them in two parallel columns, according as they lost more or less than 40 per ct., gave the following results:

Parts losing more than 40 per cent.		Parts losing less than 40 per cent.	
Fat	88.6	Muscular coat of stomach . . .	39.7
Blood	75	Pharynx and oesophagus . . .	84.2
Spleen	71.4	Skin	83.2
Pancreas	64.1	Kidneys	81.2
Liver	52	Respiratory organs	32.2
Heart	44.8	Bones	18.7
Intestines	42.4	Eyes	10
Muscles of voluntary motion	42.8	Nervous system	1.9

Among the most noteworthy phenomena caused by starvation are the offensive effluvia exhaled from the sufferers, the fetor of their discharges, and the rapidity with which the body passes into a state of putrescence; indeed, decomposition may be said to commence while life is still present. Such a condition of things is peculiarly favorable to the reception of fever and other contagious diseases, and they acquire, in such cases, an intensity and virulence rarely seen under other circumstances. Thus, as was fearfully seen in Ireland, in 1847, pestilence follows in the train of famine. The effects of the prolonged employment of an *insufficient* diet alone, are rarely seen; they are commonly complicated with those of unwholesome air and over-exertion. Of such complication, prisons, workhouses, and charitable institutions, have afforded on a large scale abundant examples. One of the most noted of these occurred at the Milbank Penitentiary, near London, in 1828. The prison is situated on marshy ground, which is below the level of the adjacent river, but it had previously been reputed healthy. A few months before the outbreak of the epidemic, the amount of dry nutriment allowed each prisoner daily, had been reduced from between 81 and 88 oz. to 21 oz., and animal food was almost wholly withheld. The prisoners were at the same time subjected to a low temperature, and to considerable muscular exertion. In a short time they began to get paler, weaker, and thinner; subsequently, scurvy, diarrhoea, and dysentery, made their appearance, and finally low fevers, or headache, vertigo, convulsions, maniacal delirium, and apoplexy. The smallest loss of blood caused fainting. Of 860 prisoners, 427, or 52 per ct., were attacked. Those who had been longest confined suffered in the greatest proportion. The prisoners who were employed in the kitchen, who had an addition of 8 oz. of bread to their daily allowance, were not affected. (Latham on the Diseases in the Milbank Penitentiary.) Another well-marked epidemic, owing to a similar cause, occurred at the establishment for the destitute children of New York, at what was termed the Long Island farms, in the winter of 1839-40. The diet of the children consisted of bread

of an inferior quality, with tea sweetened with molasses, night and morning, and soup made from coarse beef, alternately with the beef itself at noon; in addition the dormitories of the children were crowded and ill-ventilated, and they had scarcely any outdoor exercise. "About the middle of December, 1839," says Dr. Morrell, the attending physician of the asylum (New York Jour. of Med. and Surg., vol. iii.) "evidences of a constitutional change in many of the children were apparent; they were dull and inactive, their eyes lacked lustre, and their skins exhaled an offensive odor." Next, many of them were attacked with slight cholera morbus, and afterward an incurable diarrhoea, attended with gangrene about the cheeks, the anus, or vagina, set in. In most of these cases sloughing of the cornea took place and the eye was destroyed. When, for a length of time, the allowance of food, either from its indigestibility, or from its limited amount, has been insufficient for the wants of the system, the digestive organs are weakened along with the rest of the frame; the appetite is lost, and the person often loathes food, while he is suffering from starvation. The limited quantity taken is not wholly assimilated, part of it passing through the bowels unchanged. The same fact was observed in the experiments of Chossat; when turtle doves were placed upon a limited quantity of corn, but with free access to water, part of the corn was either rejected by vomiting, accumulated in the crop, or passed unchanged through the bowels.

ABSTINENCE, TOTAL. Societies or voluntary associations organized to war against the excessive use of stimulating beverages, are probably much older than any surviving records of their existence; but such are known to have existed in Europe more than four hundred years ago, while Mohammed's resolute effort to prohibit entirely the use of wine by his followers, antedates these by eight centuries. But, even earlier than this, the fact that "Wine is a mocker," had been recognized among the Hebrews, and the brief scriptural narrations concerning Noah, Samson, Daniel, and others, attest that the evils scarcely separable from the use of the most inviting and perhaps least noxious of all intoxicating drinks, and the good secured by entire abstinence therefrom, were not unknown to remote antiquity. It was reserved, however, for this country to furnish conspicuous examples both of very general excess in the use of stimulants, and of earnest popular reaction against their fearful abuse. The severity and fickleness of our climate, the absence of the grape culture, the bounteous rewards of labor, and the consequent plenty enjoyed by the laboring class, conspired with the abundance and cheapness of grain (the base of whiskey), and the proximity of the West Indies (wherein molasses, the staple of New England rum, is plentifully produced), to deluge this country, toward the close of the last and through the earlier decades of the present century, with intoxica-

ting liquors. Seasons of festivity and of sorrow, of labor and of relaxation, of gay dissipation and of religious solemnity, were alike signalized by the free use of these drinks, until drinking was barely less than universal, and drunkenness the fruitful cause of moral and pecuniary ruin. When the population of the United States had reached less than half its present number, it was estimated that 80,000 deaths per annum were caused therein by intemperance, while nearly or quite one-fourth of the families in the United States were sufferers from the palpably immoderate drinking, usually of their respective heads. Such a state of things very naturally attracted the attention of philanthropists, among whom the celebrated Dr. Benjamin Rush, of Philadelphia, may be instanced as a prominent and forcible writer against the free use of intoxicating beverages toward the close of the last century. The earliest organization, however, to stem the torrent of intemperance in this republic, would seem to have been that of "The Temperate Society of Moreau and Northumberland," (Saratoga County, N. Y.,) which was instigated by Dr. B. J. Clark of Moreau, in March, 1808, and constituted by the signature of forty-three members, mainly substantial farmers of the two towns named. Their constitution stipulated that "No member shall drink rum, gin, whiskey, wine, or any distilled spirits, or compositions of the same, or any of them, except by the advice of a physician, or in case of actual disease (also excepting wine at public dinners), under penalty of twenty-five cents. Provided that this article shall not infringe on any religious ordinance." And further, that "No member shall be intoxicated, under penalty of fifty-cents." And again: "No member shall offer any of said liquors to any other member, or urge any other person to drink thereof, under penalty of twenty-five cents for each offence." Such were substantially the scope and requirement of the earlier temperance societies, which were formed at intervals through the ensuing years; but the movement attained no considerable momentum earlier than 1828-'4. In 1826, it had become so decided, that an "American Temperance Union" was formed at Boston, which usually adjourned its annual meetings from one principal sea-board city to another, so as to awaken the widest practicable interest in the subject. But neither this Union, nor the great mass of its auxiliaries, interdicted the use of wines, cider, or malt liquors. Total abstinence from distilled spirits, except when prescribed as a medicine, with moderation in the use of the less fiery stimulants, was the general requirement. It was at the meeting of 1833, held in Philadelphia, that the principle of "Total Abstinence from all that may intoxicate" was first propounded in a National gathering of the friends of Temperance, and its reception was by no means flattering. It was voted down. Many of the original apostles of the movement—pre-eminent among them Matthew Carey—were ardent advocates of the cul-

ture of the grape, urging a generous home production of pure wine, as a preventive of the ravages of intemperance. At length at the annual meeting held at Saratoga Springs, August, 1836, the principle of total abstinence was adopted by the Union, and it has ever since been held by the active champions of temperance. The next impulse to the progress of the cause was given by what was termed the Washingtonian movement, originated by seven hard drinkers, who occasionally met in a tavern at Baltimore in 1840, and then and there resolved that they would drink no more. They formed on the spot a society for the propagation of total abstinence among those who, with themselves, had been addicted to the excessive use of stimulants. Only one of the original seven is known to have backslidden, while several lived and died honoring the cause they thus embraced, and at least one (John H. W. Hawkins) is still an effective canvasser in its behalf. The Washingtonian movement rapidly overspread the land, reclaiming thousands from drunkenness to absolute sobriety, many of whom have since died or still live strictly temperate, while many others returned, after a longer or shorter interval, to their cups, and now fill drunkards' graves. This movement spent its force in the course of a few years, and has had no subsequent revival. "Sons of Temperance," "Rehabites," "Cadets of Temperance," and several other Temperance organizations, some of them employing mystic signs or pass-words, and levying stated contributions on their members for mutual benefit, rose and flourished, mainly between 1844 and 1852, but are now nearly extinct. All these were founded on the pledge of total abstinence. As public sentiment became more and more favorable to the temperance cause, efforts to embody that sentiment in laws which should restrict if not abolish the liquor traffic, were made in one state or another; but the first decisive success in this direction was achieved in the state of Maine, whose legislature for 1851 passed an act prohibiting absolutely the sale of intoxicating liquors to be used as beverages; and this act remained in force for five years, when (1856) it was repealed in consequence of a political mutation, a license law taking its place. Those who made this change were immediately after hurled from power, but their successors have not restored the law of prohibition, but contented themselves with resolving to make no rash or sudden changes, but wait till the existing law shall have had a fair trial. Ten or eleven states and two territories (Oregon and Minnesota) have at one time or another, passed prohibitory laws, and these laws remain unrepealed in Massachusetts, New Hampshire, Vermont, Rhode Island, Connecticut, and perhaps two or three western states. In New York, such a law was broken down (1856) by the decision of a bare majority of the court of Appeals that certain of its provisions were unconstitutional. Similar decisions have at

one time or another, been pronounced in one or two of the western states, while the constitutionality of prohibitory acts has been affirmed by the highest courts of the states which still prohibit, or tacitly admitted by the liquor-sellers. New York has recently (1857) enacted a stringent license law to take the place of the prohibitory act stricken down as aforesaid. In 1884 the extraordinary reformation of drunkards in England commenced at Lancashire, and in Sept. 24, they adopted at Manchester the thorough total abstinence pledge. They were called Teetotalers, from the stuttering of one of their number, who stammered at the T, while uttering the terms "Total Abstinence." In 1889, Father Mathew commenced his society at Cork, in Ireland. Thousands on thousands flocked to his standard, until more than six millions had taken from him the pledge. The demand for prohibition, according to its advocates, logically rests on the assumption that alcohol is essentially a poison—precisely as arsenic, opium, and nicotine are poisons—that the difference between wine and brandy, beer and gin, a liquor containing five per cent. and one containing fifty per cent. of alcohol, a glass of ale and a pint of rum, is one of degree merely, not of kind, at least so far as poison is concerned. They also argue in support of their position, that alcohol is a product of vegetable decay and dissolution, and hence necessarily hurtful—that there can be no temperate use of it as a beverage any more than there can be temperate theft, adultery, or murder—that, if much strong drink does great harm, a little weak alcohol drink must do some harm, and that there can be no temperate use of such beverages but their total disuse. (See Youmans on *Alcohol*, Carpenter on *Intoxicating Liquors*, and (incidentally) Beaumont's *Experiments*.)

ABSTRACTION. Perceptions, coming as they do, through the senses, are always compound. The separation or taking away of any one of the elements of which the perception is composed, and making it a separate object of attention, is abstraction, considered as a process. As a faculty, it is the power of doing this. All the possible abstractions of a perception being made, the result is an analysis of the perception. So that while considered as acts, abstraction and analysis are accomplished by the same mental function, the function itself, or power of mind, is abstraction rather than analysis, because abstraction is the initiatory act. It is by abstraction that we attain the materials for a conception, as distinguished from a perception. Abstraction precedes classification. Abstraction and concretion are opposites, as analysis and synthesis are, and they are thus to be distinguished; analysis is the complete separation of all the parts of a given object, and synthesis is the putting them together again precisely as they were before the analysis; or at least the putting together of the same elements into a whole. Abstraction is the taking away of one

or more qualities from one or more objects, and recombining those into an object which is purely imaginary, and can have no real existence. Abstraction is sometimes distinguished in philosophy as *real*, when an arm is removed from a body, or a limb from a tree, for the purpose of considering it separately; and *mental*, when a property or quality is imaginarily removed for the same purpose. This last is the only abstraction, in a metaphysical sense; the other is dissection.

ABT, FRANZ, one of the most popular living song writers in Germany. His compositions, marked by freshness and grace, are also widely disseminated and appreciated in this country and in England.

ABUBEKR, a Mohammedan caliph, born at Mecca in the latter end of the sixth century, died A. D. 684. Abubekr means "Father of the Virgin," and this name was given to him in allusion to his relation with Ayesha, the prophet's favorite wife. His real name was Abd-el-Oaaba. He was Mohammed's most trusted adherent, and succeeded his master in the supreme authority, to the exclusion of the Prophet's son-in-law Ali. At the commencement his reign was troubled, first by the relapse of several tribes to idolatry, and by the springing up of a new sect under Moeselemah. Abubekr displayed vigor equal to the emergency, and with the assistance of the invincible sword of the hero Khaled, he compelled the backsliders to return, and suppressed the rival creed, Moeselemah himself being slain in a battle. He now led his followers to conquest. His generals fell upon the frontiers of the Roman and Persian empires, and the easy success the invaders met, excited the warrior population of Arabia to pour forth, in the double excitement of propagating their new faith and of gratifying their love of adventure and booty. The Emperor Heraclius vainly opposed them; the discipline and valor of the Roman legions were no more; Syria and the provinces of the Euphrates were soon overrun and the city of Damascus taken. Abubekr died in the full tide of conquest after a brief reign of two years. His tomb is shown by the side of that of the Prophet at Mecca. Abubekr was surnamed the Just. His charity was unbounded, while his manner of living was so strict that he possessed at his death only the one robe he wore, one camel, and Ethiopian slave. At his death he ordered these to be presented to Omar, his successor. Abubekr collected the scattered writings and the oral doctrines of Mahomet into the one work called the Koran.

ABU HANIFAH BEN THABET EL NUMAN, chief of the Hanifites, one of the four orthodox sects of Islamism, was born at Koofa in the 80th year of the Hegira, A. D. 699, and died in 767. He insisted on the practice of charity and forbearance, and Abdallah II. threw him into prison, and put him to death for his strenuous opposition to the tyrant's desire to banish the inhabitants of Mosul. He wrote

an ethical work, in which he maintained the cause of virtue and justice, and supported his position from the Koran. His doctrines are still held in respect by the Mohammedans, and a college was founded in his name.

ABU TALEB KHAN, Mirza, an oriental traveller who visited Europe, born at Lucknow, 1752, died at Calcutta, 1806. He served in the army of the Nawab of Oude, and in 1800-1802 visited England and France, returning to India by Constantinople and Persia. His account of his journey, entitled the "Travels of Mirza Abu Taleb Khan," has been published in English and French. He also wrote some other works.

ABU TEMAM, born about 807, is celebrated as the greatest of all Arabic poets. His poems are said to have procured him many thousand pieces of gold, and the Arabs say of him that "no one could ever die whose name had been praised in the verses of Abu Temam." He was also the compiler of three collections of select pieces of Eastern poetry, the most esteemed of which, called the *Hamassa*, is praised by Sir William Jones.

ABUDSAFAR, Ebn THOPHAIL, an Arabian philosopher, birth uncertain, died at Seville, A. D. 1190. He taught philosophy and medicine, and had Averroes and Maimonides for pupils.

ABULFARAGIUS, or **MAR GREGORIUS ABULFARAJ**, a Syriac and Arabic writer, born A. D. 1226, died 1286. He was bishop of Guba and Aleppo, and in 1266 was primate of the Jacobite Christians. His best known work is the "History of the Dynasties," treating of the different kingdoms of the world, Jewish, Chaldean, Persian, Greek, Roman, Mohammedan, and Mongol. The Mohammedan and Mongol history is valuable, but the other part is merely synoptical. An edition in Arabic and Latin was published by Edward Pococke at Oxford, 1663, another in Syriac and Latin at Leipsic, 1789.

ABUL FAZL, birth uncertain, died in 1608, vizier of the great Mogul Akbar in Hindostan. He is remarkable for the attention which he gave to the literature and usages of the conquered race over whom he was called to rule, and the attempts which he made to establish a liberal system of government. He is the author of several oriental works, the most esteemed of which is the *Ayin Akbari* (Institutes of Akbar), a detailed statistical and political account of the Mogul Empire in India. He also wrote the *Akbar Nameh*, a history of Akbar, and translated the Sanscrit poem of the *Mahabharata*. His efforts to reform the tyrannical system under which the people groaned, brought upon him the jealousy of the Mohammedans, and he was murdered in 1608, not without a suspicion of connivance by the Emperor's son and successor Jehanghir.

ABULFEDA, ISMAIL, Syrian prince and historical writer, born in 1273 at Damascus, died 1331. He bore arms against the crusaders, and was present at the siege of St. Jean d'Acre in 1281. He was also engaged in repelling the

Mongol invasion. He wrote a universal history, with full details of the Mohammedan Empire in the East, which has been published in Arabic and Latin. He also wrote an excellent system of geography, published at Paris 1848, with French translation. His history is very valuable for its narratives of the crusades.

ABULGHAZI BAHADOOR, khan of Khiva, born 1605, ascended the throne 1644, which he abdicated in his son's favor and died in 1668. He wrote a history of the Turks, compiled from various oriental sources, containing an account of Genghis Khan. It was brought to Europe by some Swedish officers who had been made prisoners at the battle of Pultowa, and translated into German.

ABYDOS. I. A city in Asia Minor, on the narrowest part of the Hellespont, opposite to Sestos, originally the possession of the Trojan prince Asios, and later occupied by the Thracians and Milesians, is celebrated in connection with the mighty army of Xerxes and the immense bridge built by him at this spot 480 B. C. Here was the tragedy of Hero and Leander, and here Lord Byron swam across in imitation of that luckless lover. II. A city in Egypt, (Thebais), on the left bank of the Nile, which as early as the time of Strabo, was the seat of considerable commerce with Libya, is still remarkable on account of its ruins, particularly the temple of Memnon and the large temple of Osiris. In the ruins of the former were discovered in 1818, the celebrated tables of Abydos, at present in Paris, upon which is inscribed in hieroglyphics a genealogy of the 18th dynasty of the Egyptian Pharaohs.

ABYLA, one of the pillars of Hercules, in Africa, opposite Calpe (now Gibraltar) in Spain, the other pillar; supposed to have been formerly joined, but separated by Hercules, giving entrance to the Mediterranean sea.

ABYSSINIA. This is the common name of a tract of country in Eastern Africa, lying between lat. 8° 30' and 15° 40' N. and long. 38° and 42° E., with an area which has been estimated at 282,000 square miles, and a population supposed to amount to three millions and a half. The tract consists for the most part of table land, sloping gradually west and east from a ridge at 50 to 90 miles distance from the Red Sea: it is watered by confluent of the Nile, of which the chief are the Abai and the Takkazze, which have cut themselves beds, in some cases, many hundred and even thousand feet below the level of the country they irrigate. Though wholly within the tropics, Abyssinia, from its elevation, enjoys a temperate climate, and yields the usual products of the temperate zone. From October to April, at Gondar, 7,420 feet above the level of the sea, the average temperature was given by Rüppel at 67° and 68° and 73°; from July to September inclusive, at Entshetsaquab, 10,000 feet above the sea level, the same observer recorded a mean temperature of 55°.—The seasons vary in the different sections of the country; but June, July, August, and September

are rainy in most of them, and in many the rivers rise during these months fifteen and twenty feet. Notwithstanding the old legend to the contrary, thunder and lightning are not unknown in Abyssinia.—The tract called Abyssinia by us, called *Habesh* by the Arabs, and *Ityopayawan* (Ethiopia ?) by the natives, consists of several nominally connected, but practically independent states. Of these there are three principal ones, the kingdoms of SHOA, TIGRE, and AMHARA. The history and condition of the smaller provinces, states, or divisions which are included in the maps of Abyssinia, cannot be given with any precision; those of the three we have named are enveloped in much obscurity. Abyssinia is nominally an empire, governed, on strictly hereditary principles, by a lineal descendant of Solomon and the Queen of Sheba. The emperor, however, gets only some \$800 a year salary, and the present incumbent of the throne employs his leisure lucratively in making parasols. When he is troublesome he is deposed, and another scion of the wise king of Israel enthroned in his stead. The race of Solomon appears to be equal to any demand. The real authority resides in the governors of the provinces, who pay a nominal allegiance to the emperor, and exact, when they can, something more than a nominal support from the sub-governors of the various districts in their provinces. For the last century, war has raged in Amhara and Tigre. Success has varied; at the present time Amhara appears to be the most powerful division of the empire. But anarchy is, and has been the only abiding characteristic of the country. A full account of the intestine broils of Amhara and Tigre will be found in Parkyn's Abyssinia, to which the reader is referred. Shoa enjoys more tranquillity, and is said to be in a prosperous condition. Its climate is temperate and salubrious; the soil is fertile.—The Abyssinians are a mixture of various races. The groundwork appears to be a Caucasian race, resembling the Bedouins of Arabia; brown in color, with oval face, pointed nose, smooth or curled black hair, and middle stature. This type has been crossed with the Greek, the Portuguese, the Jew, the Galla, and the negro; hence, every variety of form, and every shade of color may be seen in the native population. The nut brown color and original Bedouin type predominate. Though below the Anglo-Saxon average in point of size, the Abyssinians are commended for symmetry and figure. Travellers say that the forms of the young girls, who are but little encumbered with clothing, are marvellously beautiful; their eyes are likewise much admired. The men are susceptible of enduring great fatigue and hardship without injury; floggings which would be fatal to an Anglo-Saxon, scarcely appear to give them any inconvenience. It is common in good society for ladies as well as gentlemen to produce "beauty-spots" on their bodies, by burning tow or cotton on their naked skin, till a deep wound is inflicted: and instances are not rare, in which Abyssinians

have survived the barbarous mutilation which it is the practice of some tribes to perpetrate upon the vanquished after a victory. The chief diseases are *tanis*, or tape-worm, which seems to be universal in some parts of the country; an inflammation of the throat, producing glandular abscesses; scrofula, syphilis, and the several varieties of marsh fever, from the typhoid type to common intermittent. The medical art is in its infancy.—The ancient language of Ethiopia, the Giz, is still spoken in a modified form in Tigre. In the other kingdoms and provinces, dialects of a modern language,—the Amharic—which are, however, derived from the Giz, are commonly used. Among the Gallas and other frontier tribes, various other dialects and strange tongues are spoken.—The large cities are few. Gondar, the capital of Amhara, is said to have contained, at one time, 50,000 inhabitants and 100 churches; it has greatly declined of late years. The houses are all one story high and thatched; the only building of any consequence is the palace, which is of stone. There are some handsome factories there. The same description will answer for the town of Ankobar, the capital of Shoa, whose population, however, does not exceed 11,000. Of these, 1,000 compose the king's body guard and staff. It is said to be a delightful residence, in point of climate. The capital of Tigre, Adowa, is a miserable village, composed of straggling huts, built of stones, cemented with mud. In the wet seasons, the streets are knee deep with mud. There is not a respectable building or a manufactory in the place.—Abyssinia is rich in animals. Of the domestic species, there are horses, oxen, (the Janga breed have horns sometimes four feet in length,) asses, mules, sheep, goats, dogs, &c. The black sheep of Abyssinia are valued for the skin, termed *lovias*, which is obtained from them. Lions are occasionally met with on the river banks, but it is noteworthy that travellers see much more of them than the natives. Encounters with lions abound in books of travel in Abyssinia; a resident of the country seldom hears of any thing of the kind, and though the murder of a lion is a crown of glory for a Galla, there are very few Gallas who claim it. Large leopards, or panthers, are common enough; the chocolate variety, with black spots, are very beautiful. They are usually trapped by the natives with the aid of a slip-noose suspended from a strong branch, which is forcibly bent toward the ground, and held in that position by a trigger. When the hungry leopard touches the bait, he disengages the rope from the ground, his head is caught in the noose, the branch springs back, and he is hanged. Civet cats were, it seems, once natives of Abyssinia; now they are kept as domestic animals by the Gallas, for the sake of the civet which is scraped from their legs, but they are not known to exist in a wild state there. Perhaps the most abundant race of brutes in Abyssinia is the hyena, which not only teems in the country districts, but acts as scavenger to every town and village,

disputing the offal with the hungry dogs. Though as cowardly as elsewhere, the Abyssinian hyena is an object of some dread to the natives. He can tell, they say, by the scent, when a traveller is fatigued, and if his olfactory nerves convey to him this information, the brute will follow the unhappy wayfarer till he lies down, then tear out a piece of his flesh with a sudden bite, and dash off. When the hyena is not certain that his victim is sound asleep, he will gently rub him with his paw; should the caress fail to awaken the sleeper, the brute will seize a mouthful from a fleshy part; should the man be aroused, the hyena will fly at full speed, leaving behind him evidences of a highly nervous temperament. Between the donkey and the hyena an irreconcilable feud rages. Large scars on the flanks of donkeys bear witness to successful frays of their foes, and now and then an obstinate donkey will contrive to seize a hyena in his teeth, and to hold him there till he dies. A curious species of hunting-dog, called "tokla" by the natives, seems peculiar to this part of Eastern Africa. It is very small, weighing from five to seven pounds, with a little, lean body, long hind legs, which seem doubled up under the animal in walking, ears like a hare, and head like a terrier. These dogs are said to hunt on their own account in large packs, and such is their endurance and tenacity, that it is said they will kill the elephant by clinging to the under parts of his belly, and wearing him out. They swallow their food without mastication, and are never satisfied; even when tamed, they will bite their masters' legs, not from vice, but from their appetites. Elephants used to be used in Abyssinia as beasts of burthen; they are not domesticated now, and are rarely hunted, though not uncommon in parts of the country. Buffaloes abound on the plains, but it is more common for them to hunt travellers, than for travellers to hunt them. Science is a loser by the novelty, as no record of their performances is kept, beyond the mangled and trampled corpses which are occasionally found near the roadside. The giraffe, which used to be common in Tigre, is now very rare; but the hippopotamus, which in other parts of the world is disappearing so rapidly, is very plentiful in the Takkazze, and in all the waters of the Amhara country. Some tribes live almost entirely on its flesh; throughout Abyssinia whips made of its skin are used. There seems, however, to be less ivory produced from its tusks than might be imagined. Of monkeys there are two common varieties, a small, greenish gray baboon, and another with black back and head, and white sides and cheeks, which is called the "goreyza." This latter animal, which Parkyn calls the most beautiful of the monkey tribe, has religious inclinations, and will not move far from a church; as he leaps from tree to tree, with his long white and black hairs flying in the wind, wing-like, he looks, in the twilight, like an odd kind of angel. The Abyssinians state that in the interior of their country may be found the genuine tailed man,

or articulate baboon; unfortunately, hitherto the researches of travellers have failed to discover any facts to support this belief. Antelopes, hares, gazelles, goats, conies, porcupines, hedgehogs, squirrels, ichneumons, are also found in Abyssinia. In birds, Abyssinia is also rich: eagles, ostriches, enormous vultures and gigantic ravens, a great number of hawks, falcons, and owls; storks, herons, cranes, geese, ducks, plover, grouse, partridge, guinea-fowl; several varieties of the cuckoo; parrots and paroquets, woodpeckers, fly-eaters, swallows, pigeons, doves, thrushes, kingfishers, sun-birds, larks, &c., &c., are found in profusion. Among the reptiles, the most respectable is the boa constrictor, which grows to the usual size; and the commonest are the crocodiles and lizards. A small lizard, called a "dhabb," is much feared by the natives, who fancy he poisons any food he touches, but this seems to be a calumny. Tarantulas, venomous spiders, centipedes, horned vipers, scorpions, puff adders, and some families of cobras, are also found in the hot districts. They are not dreaded by travellers.—Among the chief agricultural products may be enumerated wheat, barley, Indian corn, beans, teff, lentils, vetch, garlic, onions, flax, and in the lowlands, coffee and cotton. In Tigre and some other parts, the grape-vine thrives, but the wine that is made from it is not much considered by travellers. The quality of the coffee is only second to the Mocha, but the quantity exported is very small. There is but little agricultural produce exported.—There is but little foreign commerce in Abyssinia, for, in the first place, the people have few wants which they cannot supply, and secondly, the country has no seaport. Massowah, on the Red Sea, and 40 miles from the Abyssinian frontier, is the seaport for Amhara and Tigre; Shoa does business through the seaport of Tajurra, on the Gulf of Aden, over 200 miles from the frontier of Shoa. Merchandise is carried to and from these ports in caravans, on mules, and the mercantile community of Abyssinia consists chiefly of these carriers. The exports of Massowah consist of gold, ivory, musk, coffee, beeswax, butter, honey, pearls, tortoise shell, gum, senna, and cowrie shells; the imports are raw cotton, blue and red cotton cloth, silks, velvets, cambrics, pepper, &c. By way of Egypt, Abyssinia gets some hardware, such as razors and sword-blades, cloths, glass, carpets, &c. Formerly the chief export of Massowah was slaves, of whom over 2,000 were exported annually, but the East India Company has lately put down this traffic. A considerable proportion of the imports at Massowah, and it is presumed those at Tajurra likewise, are re-exported to the interior of Africa, at the weekly fair held at Baso, on the Abai. Here the Gallas and other southern and western merchants exchange slaves, ivory, civet, and gold, for cotton cloths, hardware, glass, &c. Formerly the annual receipt of slaves at Baso from the interior, was estimated by Dr. Beke at 10,000 head. See, for further information respecting the trade

of Abyssinia, Appendix to Parkyn's Abyssinia, Vol. I.—In minerals, Abyssinia is not known to be rich. Iron is worked in the mountains of Lasta, for home consumption. Gold is found in several places, and is an article of export from Massowah, but as it sells from \$11 to \$15 per ounce, it is probably of poor quality. Large salt plains exist in Tigre, and are extensively worked; in parts of the country, salt is the usual currency.—The prevailing religion of Ethiopia is Coptic Christianity, the *Abuna*, or head of the church, being appointed at Alexandria. There are, however, Mohammedans and Jews in various parts of the country. Of Abyssinian Christianity the ruling characteristics are intolerance and formality. The number of regular fast days is 260 in each year, and a regular fast implies abstinence from drinking as well as eating. Besides these, the church decrees extraordinary fasts from time to time. Should an Abyssinian be known to neglect these fasts, his body would be refused sepulture. On the other hand, there are abundance of feasts, on the church holidays and saints' days, and travellers relate that the Abyssinian divines are at least as scrupulous in their observance of these as of the fasts. Nights are spent in alternate prayer, dancing, and drinking, and the sacrament is administered before sunrise. It is reported, that it has happened that when the sun rose, none of the divines present were in a condition to officiate; but it was well understood that such accidents were the fruit of excessive religious fervor. The Christianity of Abyssinia bears traces of Jewish descent. The churches contain apartments styled the "Holy of Holies," and appropriated for the tabernacle; circumcision is practiced, the Mosaic law in reference to eating is observed, and likewise in reference to cleanliness and uncleanness; priests are not allowed to marry, but a married man may be ordained a priest; priests are required to be able to read a little, to take holy orders, but benefices are always for sale. Lately, the church in Abyssinia has been violently agitated by a discussion on "the uncton of Jesus Christ;" an actual split has taken place, and the hostile parties have excommunicated each other. Various superstitions are current in Abyssinia with regard to the devil. It is believed that he occasionally enters the body of young girls, and incapacitates them from performing their usual labor. Mr. Parkyn relates several interesting stories on this topic. The form of treatment varies; incantations are a favorite method with the native practitioners; a stout horsewhip applied to the lower part of the back has, however, been found to answer in severe cases, where the sufferer, a house-servant, was deprived by the demoniac influence of the power of doing her work. Blacksmiths are hereditary sorcerers. They possess the power of turning themselves into hyenas, a very moderate and unsatisfactory privilege, one would imagine, in a country where the animal is so abundant. Other sorcerers, called *Fellaty*, make a precari-

ous livelihood by frightening countrywomen, and extorting money, food, or cloth from them, under threats of evil spells.—The dress of the Abyssinians is very simple. It consists of a pair of cotton trousers, usually tight, a belt of cotton cloth varying from ten to sixty yards long, and a cloak, or "quarry," worn over the shoulders. Married women substitute a long shirt reaching from the neck to the feet for the trousers and belt, and wear a cloak like the men's, but with a fringe or gay border. Young girls wear a cotton skirt from the waist to the knee, and the quarry over the left shoulder. In parts of the country, unmarried girls dispense with the quarry altogether; and in the vicinity of Nubia, a leather fringe is substituted for the cotton skirt, and constitutes the whole costume of these simple girls. Abyssinian ladies are fond of ornaments, especially rings. Those who are rich cover their fingers with them. The weapons of the native soldiery are the spear or lance, which is sometimes jerked, and sometimes used in the hand, the sword and shield, and the matchlock, a stupid, inconvenient fire-arm, which takes a quarter of an hour to load. Travellers seem to think that they would oppose no resistance worth mentioning to a body of disciplined troops. Late travellers discredit Bruce's account of the Homeric repasts, at which the guests cut slices from living animals, and positively ate them to death. But the Abyssinian feasts are not consonant with our notions of delicacy. Whole oxen and sheep are slaughtered, and ravenously devoured by the hungry guests, who rarely use any implements but their fingers; the floor of the banquet hall commonly reeks with blood, sauce, butter, and beer. All animals are eaten but the hare and camel; no Abyssinian, however, will touch food which the hyena has tasted, that animal being reputed Mohammedan in his belief. Birth is an unclean ceremony in Abyssinia, and none but women are allowed to be present on such occasions. Should the infant be pronounced a boy, a man from outside the mother's dwelling thrusts a spear through the window, and the point is made to enter the child's mouth; this operation will render the boy courageous. The birth of a child is celebrated by a species of female Bacchanalia, during which swarms of women set upon every man they meet, and assault and worry him until he has purchased his escape out of their hands. Beer is a common currency in transactions of this nature. Eight days after birth the child, whether male or female, is circumcised; at a convenient opportunity thereafter, it is baptized. Education by books is a superfluity rarely encouraged in Abyssinia. The chief duty of girls before puberty is carrying water from the well. It is to be regretted that this service, which will be associated with much of romance in the reader's mind, is associated, in practice, with the foundation of very loose habits among the Abyssinian females. The walk to the well, and the games there, in which boys and girls join, are not conducive to moral-

ity in either sex. At the age of twelve, Abyssinian youths entertain views of matrimony. Oxen form the basis of their selection; that is to say, they marry the girl whose father can provide them with the most oxen. The chosen fair one, who need not be over nine years of age, is not seen by her adorer between the period of the ox-bargain and the marriage. On the auspicious day, she is carefully washed by her female relatives, her hair dressed after the most approved fashion with plenty of butter, and her person arrayed in her most attractive toilette. A wedding feast is given both at the bride's and at the bridegroom's residence; the gastronomical performance of guests on these occasions is said to be prodigious. During the festivities at the bride's house, she is brought in on the back of a male relative, and dumped in the middle of the room. Dances and other convivial sports consume the night; at day-break the groom, who has been feasting at his own house, makes his appearance with a strong body of friends, well armed. They halt opposite the bride's dwelling, and fire volleys from their matchlocks, while the happy man enters and claims his bride. A sort of religious ceremony then takes place, kisses are interchanged, and the groom, seizing his wife, carries her out and transfers her to the charge of his groomsmen, while he devotes himself to the more important concern of receiving the dowry and presents. From that time the happy pair live together; but for a day or two, it is considered indispensable that two or three of the groomsmen should occupy the same chamber with the married couple. Funerals are conducted much upon the plan used in other countries, but the medical systems in vogue tend to increase their frequency. A favorite regime for fever is to surround the bed of the patient with old ladies of strong lungs, who howl and wail for several days together, lamenting the prospect of the sufferer's death, and at the least sign of torpor, the unhappy victim is instantly buried. It is a common belief in parts of Abyssinia that the evil spirit visits the graves of the dead to claim their souls, and the groans and cries which are frequently heard to issue from fresh graves are understood as marking the struggle between the devil and the dead man's soul. It has not yet occurred to any one that these sounds were the stifled cries of unfortunate persons buried alive. Travellers generally concur in imputing to the Abyssinians cruelty, treachery, and debauchery. Their disgusting mutilation of the killed and wounded in war would seem to justify the first charge. Of the second it is perhaps difficult to speak, as foreigners are apt to discover treachery where a native would meet with fair, open dealing. But there can be no question but the bulk of the people of Abyssinia, males as well as females, are reckless of morality as respects the relations of the sexes, and in many parts, abandoned to the grossest sensuality.

ABYSSINIAN CHURCH. So soon as the doctrines of Arius had been condemned, and

the council of Constantinople had settled the Trinitarian controversy (381), and it became the confessed doctrine of the church that Jesus Christ was God, men began now for the first time seriously to inquire into the probable nature of his existence while incarnated. This speculation was, as might be expected, particularly urged in the Egyptian church. At Alexandria, the opinion of Apollinaris that Christ had only one nature, namely, the divine, and that this supplied the place of a human soul to him, took general and strong root. The believers in this doctrine were called Monophysites. From Alexandria, as the centre of religious views for Egypt, the Monophysitic views affected the entire Egyptian church. Alexandria was the great centre of Egyptian and Roman trade. About the beginning of the fourth century there landed on the coasts of Abyssinia an expedition of discovery sent out from Tyre. They were all murdered except two, Frumentarius and Adesius. These persons were Christians, and used the influence they soon acquired in the Abyssinian state in favor of Christianity. They gathered together all the Roman merchants scattered in the country, and established a Christian church. Frumentarius went to Alexandria and was ordained bishop of Axum, then the principal trading mart of Abyssinia. Thus the Abyssinian church was founded under the influences of Monophysitism, which doctrinal attitude it maintains to this day. The head of the church (Abuna) is taken from among the Coptic priests. In sympathy, the Abyssinian church is with the Greek church rather than with the Roman. Having always been Monophysitic, the usual disputes about the nature of Christ have not torn the Abyssinian church into factions. They are, however, violently agitated by discussions on what they term the several nativities of Christ, of which the leading party at present reckon three. A still more recent controversy has sprung up concerning whether Christ possessed consciousness and a knowledge of good and evil, while yet in the womb of the Virgin; and one equally important has grown also out of the nativity doctrine, namely, whether Christ is now equal or inferior to the Father in authority and power. The monarch and officials are in favor of the present inferiority of Christ, and that first-named functionary promulgates the faith by deposing all the unbelieving priests. But the most virulent controversy which distracts the Abyssinian church is whether the Virgin Mary is the Mother of God, or only the Mother of Jesus, and therefore whether she is entitled to equal honors with her Son. Circumcision is used in the Abyssinian church, and precedes baptism, and is practised upon both sexes. Children are baptized by immersion and adults by copious affusion. The Nicene creed is used, the Apostles' being unknown. Communion is administered daily to the laity in both kinds. Confession is rigidly practised, even among the priests. Candidates

for the priesthood must be able to read, to sing, and grow a beard, and they pay two pieces of rock salt as the price of being breathed upon by the Abuna, and having the sign of the cross made over them. The orders in church government are Abuna, Bishops, Alaka, who has charge of the revenues, and Priests and Deacons, who prepare the communion bread and keep the church utensils clean. There is also a monastic order in Abyssinia founded in the thirteenth century. Priests are very abundant. It requires twenty priests and deacons to do the duties of one church. Some peculiar social practices connected with religion exist among the Abyssinians. If a man has had four wives and outlives them all, he must go into a monastery, or be excommunicated. The husband can break the marriage tie at any time, by becoming a monk, and leave his wife to take care of the children. The priests have the power of granting divorces. There is a version of the Old and New Testament in the Amharic languages, made by Abreka, an Abyssinian, the companion of Bruce. Efforts have been made to elevate the moral and religious tone of the Abyssinians, both by the English and Roman churches, but the violent political agitations of the country, and the jealousies of the Abyssinian priests cripple the efforts of the missionaries.

ACACIA, a plant of the order *leguminosae*, mentioned by Dioscorides, probably identical with the Egyptian gum arabic tree, to which the classical name is still applied. Among modern botanists, the name is applied to a class of trees or shrubby plants, extending over all the tropical parts of both the old and new worlds, as also over all Australia and Polynesia. A few species only are found in temperate climates. The flowers are polygamous. The calyx has 4 or 5 teeth; the petals are 4 or 5 in number; the stamens vary from 10 to 200; the pods are not jointed, juiceless, and two-valved. By their foliage, the acacias are distinguished into two grand subdivisions: 1. Those which have leaves pinnated in various degrees; of which there are about 200 species known. 2. Those which when young exhibit pinnated leaves, but when old have nothing but the distended leaf-stalks, called phyllodia. Of these the species are about 100. The acacias are generally beautiful trees with graceful, waving, feathery foliage, and often with clusters of highly-perfumed white, yellow, pink, or lilac pea-shaped flowers. For timber, they are worthless, the wood being soft and fissile, with the centre pithy. Their fruit is not edible. They are, however, much cultivated for ornament, some in the open air, some in the greenhouse, some in the stove; according to their various degrees of hardiness.

ACACIUS, SAINT, Bishop of Amida, in Mesopotamia, A. D. 420. He sold the church plate, to redeem 7,000 starving Persian slaves. Versanius, their king, was so affected by this noble action, that he sought an interview with

the bishop, which resulted in a peace between that prince and Theodosius I.

ACAD, one of the five cities in the "land of Shinar" or Babylonia, said (Gen. x. 10) to have been built by Nimrod. Col. Taylor, British resident at Bagdad, has, with great probability, identified it with the ancient ruins called Akker-koof, in Sittacene, consisting of a mound surmounted by a mass of brickwork, of pyramidal form, 400 feet in circumference at the bottom, and 125 feet in height, situated about 9 miles west of the Tigris at the point where it makes its nearest approach to the Euphrates.

ACADEMY, a public pleasure ground situate in the Ceramicus (tile-field), an Athenian suburb. In the fifth century B. C. this land belonged to Cimon the son of Miltiades, and the head of the Athenian aristocratic party. Cimon beautified these grounds by all the appliances of art, gave free admission to the Athenian public, and at his death bequeathed them as a public legacy to his fellow-citizens. They naturally became a favorite resort for all the loungers of the city, and Socrates was wont to hold forth to the well-bred young men of Athens in this delightful place. Plato, the most illustrious of the pupils of Socrates, established a school of philosophy in its groves, and this school, named also Academia, from its site, is the prototype of all those institutions of learning which have sprung up since the revival of learning in modern times. Plato, after presiding over this famous school for nearly half a century, died about the year 348 B. C. As the Platonists were also called Academists, so wherever an academist started a school, he called that school an academy. The word academy is used in English in two senses: in its unambitious acceptation it means a place of higher instruction for youths, ranking with the gymnasia of Germany, above a common school and below a college or university. Thus we have the Free Academy in the city of New York, for the instruction of the rising generation. The name is also given to those national military and naval high schools which exist in Britain and America. In Britain there is the Naval Academy at Portsmouth and the Royal Military Academy at Woolwich, and in the United States the Military Academy at West Point. But the word academy, in its larger acceptation, is employed to designate a society of learned men, established for the improvement of science, literature, or the arts. The first association of this sort that we meet with in history was called Musæon or Museum, and was founded in Alexandria by Ptolemy Soter, one of the generals and successors of Alexander the Great. This wise and self-restraining soldier, after he had got possession of Egypt, determined to abjure all further aggressive expeditions, and to restrict his energies to maintaining a defensive balance of power and to the cultivation of letters and science. Gathering around him a number of philosophers of various attain-

ments, he sought to attach them permanently to his court by collecting books and treasures of art. Here, too, was that wonder of antiquity, the Alexandrian Library; and when Thebes, Sparta, Corinth and Miletus lay in ruins, when Athens had lost its old pre-eminence, Greek literature and Greek philosophy burst into a new existence around the court of the Ptolemies. Rome had no academies. The Roman Emperors preferred to see the literary men of the world's capital wretched dependents on the favors of the court, offerers-up of incense to the Neros and the Heliogabali, and took no step to gather into one inspiring focus the gifted minds that were drifting about, isolated and alone, in the press and throng of the Eternal City. The Alexandrian example, if lost upon the unintellectual Romans, was imitated by the Jews, and from them spread to the Nestorian Christians. The liberal caliphs who succeeded Mohammed profited by the lessons taught them by their Jewish and Christian subjects, and improved upon them by founding establishments for the preservation and increase of human learning from Spanish Corduba to Samarcand. The barbarian flood submerged the western world, and rushed by the walls of Byzantium; and during this long reign of violence and ignorance we see but one attempt in Christendom to revive the tradition of learned societies. That attempt was made by Charlemagne at the instigation of the active mind of Alcuin, who had himself probably adopted the idea from the Saracens. The imperial palace became the seat of an association for mutual improvement. Every member was to give an account of his readings and the subjects which had interested his mind. In order to efface the distinctions of rank and race, every associate must assume an appellation taken from sacred or profane history. Egilbert, a young Frankish lord, called himself Homer; Alcuin became Flaccus Albinus; the Abbot of Corbie, Augustine; Theodulph, Pindar; and Charlemagne himself, David. But this well-meant effort bore no lasting fruits. When Charlemagne slept in the cathedral of Aix-la-Chapelle his good work fell to pieces under his wrangling sons, and a new era of darkness brooded over the Latin world. Constantinople fell in 1458, and the effectual revival of learning dates from the immigration of the learned men of the Eastern empire into the south of Italy. Then Lorenzo de' Medici founded at Florence a Greek, and Cosmo de' Medici a Platonic Academy, under the care of Argyropylos, Theodore Gaza and Chalchondylas, for the study of the works of Plato. These were followed by a plentiful crop of academies in Italy, where every city had one. In the genuine Italian spirit, the newly-aroused votaries of learning dubbed themselves with odd and extravagant titles. Rome had its Lincei, Naples its Ardenti, Parma its Insensati, and Genoa its Addormentati. In other towns were the academies of the Confused, of the Unstable, of the Drowsy, the Dead, the Nocturnal,

the Thunderers, the Smoky, and the Vagabonds. We remark that most of these academies were endowed by the state or by some wealthy patron of learning. All those learned associations, which are in point of fact academies, but which bear the name of societies, will be treated under that title. We shall now proceed to notice some of the most celebrated academies of the world, ranged according to their nationalities. I. ITALIAN ACADEMIES.—Italy is the mother country of modern academies. Jakeius, who, in 1735, published at Leipsic an account of them, enumerates nearly 600 as then existing. We have already mentioned the first two; they did not live long. The most enduring and influential of all was the *Accademia della Crusca* (literally academy of bran or chaff), in allusion to its chief object of purifying and winnowing the national tongue. It was founded in 1582, and had a dispute with Tasso. The Dictionary of the Academy della Crusca was first published in 1612, and in its augmented form (Florence, 1729-1738) is considered as the standard authority for the Italian language. The *Della Crusca* is now incorporated with two still older societies, and thus united they are called the Royal Florentine Academy. In 1560 there was established at Naples the first association for the cultivation of physical science, under the name *Accademia Secretorum Naturæ*, and it was soon after abolished. This was succeeded by the Academy of Lincei at Rome founded by Prince Frederic Cesi in 1609. Galileo was a member. The *Accademia del Cimento*, or of Experiment, was also instituted for the prosecution of inquiries in physical science. It was under the protection of Prince Leopold, brother of the Grand Duke of Tuscany. A collection of experiments was published in Italian by this academy in 1687, of which a Latin translation was made with valuable notes. The *Accademia degli Arcadi*, or Academy of the Arcadians, at Rome, was established in the latter part of the 17th century by a company of poets, artists, and patrons of art, who met at the palace Corsini, the residence of the ex-queen Christina of Sweden. Poets only were admitted, but there was no restriction as to sex. Each member assumed the name of a shepherd, and appeared masked. The sittings took place in the open air. It held seven meetings a year. Six were devoted to reading the compositions of the resident members, and the seventh to those of foreign or absent members. Since 1726, this Academy has met in summer in the *bosco Parrasio* of the Mount Janiculum, in winter in the *Sorbatago*. It publishes a monthly collection of pieces, called the *Giornale Arcadico*, which frequently contains curious archæological information. Pope Leo XII. was elected a member in 1824, and Louis Napoleon, then president of the French Republic, in 1850. The Royal Neapolitan Academy was established in 1779, and the Academy of Herculaneum about 1755. The object of the latter was to explain

the remains which were exhumed at Herculaneum and Pompeii. Its first volume appeared in 1775. Further volumes have since been published under the title of *Antichità di Ercolano*. Another existing academy is that of Etruscan Antiquities at Cortona, founded in 1736. We must not forget to particularize the Royal Academy of Turin, in whose volumes of Transactions Lagrange first made himself known. Padua, Milan, Sienna, Verona, Genoa, all have Academies which produce Transactions from time to time. The earliest academies of Fine Arts are also Italian. That of San Luca at Rome was established in 1593 by Frederic Zuccherò, who erected a building for it at his own expense. Academies of Fine Arts also exist at Bologna, Turin, Milan, Parma, and many other cities. II. FRENCH ACADEMIES.—The earliest and greatest of French Academies, the *Académie Française*, was instituted in 1635 by Cardinal Richelieu, for the improvement and regulation of the national tongue. The number of its members was limited to 40. They met three times a week at the Louvre. The most remarkable claim of this academy to fame is the Dictionary of the French language published in 1694, after fifty years consumed in debate upon the words to be inserted as good French. Many additions have been made to this in successive editions. This academy fell under the derision of the French wits, on account of its subserviency to the court and the ministers, and its personal jealousies against rising men of genius. Molière was passed over, for instance. Boileau and La Bruyère were only elected on the absolute command of Louis XIV. The witty Piron wrote his epitaph thus :

Cl-gît Piron, qui ne fut rien,
Pas même Académicien.

The *Académie Française* survived until abolished by the Republican Convention in 1793. The next of the French Academies, in date, is the *Académie Royale des Inscriptions et Belles Lettres*. It was instituted by M. Colbert under the patronage of Louis XIV. in 1663, for perpetuating the memorable events of the French monarchy by coins, medals, and inscriptions. It was suppressed in 1793. The Royal Academy of Sciences was the third in date. It was organized in 1666 and entirely remodelled in 1699. The Academy of Painting and Sculpture at Paris was designed by MM. Le Brun, Larazzin, and Corneille. In 1655 letters-patent were granted to it by Cardinal Mazarin. In 1664 it became a recipient of royal bounty. In 1671 an Academy of Architecture was established by the same minister. These were both abolished by the Convention in 1793. In 1795 all these academies were revived in a new form by the directory, under the name of the *Institut National*. Napoleon gave it a new organization in 1803, and called it the Imperial Institute of France. Louis XVIII., at the restoration, maintained the name *Institut de France*, but revived the old title Academy for the component

parts of the Institute. The institute consisted then of four academies: 1, *l'Académie Française*; 2, *l'Académie des inscriptions et belles lettres*; 3, *l'Académie des sciences*; 4, *l'Académie des beaux arts*. After the revolution of 1830 a fifth academy was added, *l'Académie des sciences morales et politiques*. Napoleon III. has added the word Imperial to the Institut de France, which now again runs thus, *Institut Imperial de France*. As these five academies are the most important of their kind in the world at present, we make room for a particular description of their constitution. The institute numbers 217 members, together with seven secretaries; each of the members has a yearly salary of 1,500 francs, and the secretaries each have 600 francs. There are also 48 honorary academicians who receive no pay; 88 associates, and 220 correspondents. The five academies bear the same relation to the institute that colleges do to a university. The *Académie Française* consists of 40 members. It meets twice a week, and has the care of the French language in its charge, and all that appertains to grammar, rhetoric, and poetry, and the publication of the French classics; it distributes two annual prizes of 10,000 francs on the foundation of Count de Monthyon, one to the author of the best work on public morals, the other to the individual of the working classes who in the course of the year has performed the most virtuous action; an annual prize of 2,000 francs on the foundation of Baron Gobert, for the most eloquent work on the history of France, and every second year a present of 1,500 francs to a poor rising genius who needs encouragement. This last is a bequest of the Marquis Maillet-Latour Landry. The Academy of Inscriptions and Belles Lettres consists also of 40 members, 10 honorary academicians, and 8 foreign associates; it has 40 corresponding members at home and abroad. It meets once a week. Their concern is with general history, the condition of peoples, laws, and manners, religious and philosophical systems; also the study of chronology and geography, medals, inscriptions, and monuments of all sorts; with comparative philology, and explanation of ancient documents. This academy bestows a yearly prize of 2,000 francs for the best memoir contributed to its Transactions, and another yearly prize for numismatics. It superintends the publication of the following works: *Memoires de l'Académie des inscriptions et belles lettres*; the collection of the transactions, which have been sent to it by learned investigators; *Collection de notices et extraits des manuscrits de la bibliothèque royale et autres bibliothèques publiques*; *Memoires sur les antiquités de la France*; an edition of the Literary History of France begun by the Benedictines; the *Collection des histoires de France*; the collection of the *Histoires des croisades orientales grecques et latines*; edition of the *Ordonnances des rois de France*, also begun by the Benedictines; collection of the charters and documents relating to the history of France,

the letters of the kings of France, and the catalogue of the charters. The conduct of the *Journal des Savants* devolves chiefly upon this academy, although every member of all the academies can contribute. The *Académie des sciences* numbers 65 members, 10 honorary academicians, and 8 foreign associates. It bestows an annual prize of 8,000 francs for productions on natural science; three yearly prizes on Monthyon's foundation, for, statistics, mechanics, and experimental physiology; a prize of 10,000 francs, founded by Lalande, for the most important astronomical discovery or observation, and another by the widow of the astronomer Laplace, for the best scholar of the polytechnic school. Many other rewards are in its gift for scientific and industrial inventions, discoveries, and improvements. This academy publishes three series of *Memoires*, and, what is peculiar, holds its sessions in public, which are much frequented by the residents of Paris. The late M. Arago is said to have suggested this proceeding. The *Académie des beaux arts* consists of 40 members, 10 honorary academicians, and 10 foreign associates. It meets once a week. It superintends the competitive examinations for the yearly prizes, in reward of the best achievements in painting, sculpture, architecture, engraving in copper, and musical composition. It has its memoirs and transactions, and is busied in the discussion of the *Dictionnaire general des beaux arts*. The *Académie des sciences morales et politiques* numbers 80 members. Its sections are philosophy; moral philosophy; legislation; public law and jurisprudence; political economy and statistics; history, and the philosophy of history. The last division has in its gift one yearly prize. This academy has five honorary academicians, and five foreign associates. The whole institute has one regular session in common, on the 2d of May of each year. By an imperial decree of April, 1855, an annual prize of 10,000 francs is placed by the government at the disposal of the institute, for the most useful invention of the last five years. Academies that have not been developed into institutes exist in many of the large cities of France, as at Soissons since 1675, Nismes (1682), Angers (1685), Oaen since 1705; at Toulouse, the first volume of whose transactions is dated 1732; at Rouen since 1736; at Bordeaux since 1708; at Marseilles since 1726; at Lyons since 1700; at Montauban since 1744; at Amiens since 1750; at Dijon since 1740, and so on. There is also at Paris the *Académie Celtique*, founded in 1807, for the elucidation of the history, customs, antiquities, manners, and monuments of the Celts, particularly in France; also for philological researches by means of the Breton, Welsh, and Erse dialects; and, thirdly, for investigation into Druidism. This is now merged in the *Société des Antiquaires de France*, and has published several volumes of interesting memoirs. The French Opera is styled the *Académie de Musique*.—In this place mention

of the French-Swiss, and Belgian academies naturally occurs. The Medical Academy at Geneva, founded in 1715; the *Académie des sciences et des belles lettres*, at Brussels, which has published memoirs since 1777; and the institution of the same name at Flushing, are the principal. III. SPANISH ACADEMIES.—A society for the cultivation of physical science, under the title of *Academia Natura Curiosorum*, was established at Madrid in 1652, on the model of the Neapolitan *Secretorum Natura*, before described. Of those now existing three are especially noteworthy, viz., the Royal Academy at Madrid, founded in 1714, on the model of the *Della Crusca* and the *Académie Française*; it published its dictionary 1726–1789—the Royal Academy of Spanish History: this commenced as a private association at Madrid, but was taken under royal protection in 1788—the Academy of Painting and Sculpture, at Madrid, dates from 1758. Prizes are distributed every three years. There are a few provincial academies in Spain. IV. PORTUGUESE ACADEMIES.—An academy of Portuguese history was established at Lisbon in 1720, by king John V. A still more flourishing though more recent institution is the Academy of Science, Agriculture, Arts, Commerce, and general Economy, founded by queen Maria in 1779. It is liberally endowed by the state, and is divided into three sections: 1, that of natural science; 2, that of mathematics; 3, Portuguese literature. The Geographical Academy at Lisbon has published a map of Portugal since the beginning of this century. V. GERMAN ACADEMIES.—The Royal Academy of Sciences and Belles Lettres, at Berlin, was founded in 1700, by Frederick II. of Prussia, partly on the model of the Royal Society in England. Leibnitz was its first president. The first volume of transactions appeared in 1710. In 1744 Frederick the Great gave it a new organization; the king invited to Berlin many distinguished foreigners, and placed Maupertuis at the head of the institution. Formerly the transactions were published in French, but since the revolution they have appeared in German. A yearly medal worth 50 Prussian ducats is distributed. In 1754 the elector of Mentz established the Electoral Academy at Erfurt. Its transactions were originally published in Latin; of late they have appeared in German. There are academies of sciences at Mannheim, Munich, and Giessen in Hesse. The most ancient of German academies is the *Academia Natura Curiosorum*, established at Vienna in 1652. In 1687 it assumed the name of *Cesareo-Leopoldina*, in honor of Leopold I. The Academy of Arts and Sciences of Vienna was founded in 1705. In 1754, in the same city, an academy for the study of the oriental languages was originated. The oldest German academy of the fine arts is that of Nuremberg, founded in 1662, by Joachim Sandrart; that of Dresden dates from 1697. There are others of this description at Berlin, at Vienna, at Munich, at Weimar, and in various

other cities. VI. SCANDINAVIAN ACADEMIES.—The Royal Academy of Sciences, at Stockholm, was instituted by six men of science, among whom was Linnæus. Their first meeting was on June 2, 1739; in that year their first volume of memoirs appeared. On March 31, 1741, they were incorporated under the name of the Royal Swedish Academy. It is not buoyed up by royal or state patronage like the academies of France, Spain, Italy, and Germany. It has, however, a large fund, the fruit of legacies by private individuals. The transactions are written in the Swedish language, but have also been translated into German. Annual premiums for the encouragement of agriculture and inland trade are distributed by the academy. The prize fund is indebted for its existence to voluntary contributions. Stockholm contains also an Academy of Belles Lettres, established 1753; and the Literary Academy of Sweden, founded in 1786. Its object is the cultivation of the national language. There is an Academy of Northern Antiquities at Upsal, whose researches have done much toward elucidating the early condition and creeds of the Gothic race. The Royal Academy of Sciences at Copenhagen owes its origin to six individuals. The Count of Holstein was its first president, and the king of Denmark extended to it his patronage in 1743. It has published fifteen volumes in the Danish language, which have been in part translated into Latin. The Academy of the Fine Arts was established in 1733, at Stockholm, by the exertions of Charles Gustavus, Count of Tessin; and that of Copenhagen in 1738, incorporated 1754. This last institution was the alma mater of Thorwaldsen. VII. SLAVONIC ACADEMIES (Russian and Polish).—The Imperial Academy of Sciences, at St. Petersburg, was projected by Peter the Great. He took the advice of Wolff and Leibnitz. Learned foreigners were invited to become members. The death of Peter left the execution of this project to his successor, Catharine I. The academy held its first sessions in December, 1725. A large annual sum was appropriated for the support of the members. The most distinguished of the professors were Bulfinger, a German naturalist; Nicholas and Daniel Bernouilli, Wolff, and the two De Liales. The academy suffered many vicissitudes until the accession of the Empress Elizabeth, in 1741, when new life was infused into it. The first transactions of this academy were published in 1728, and entitled *Commentarii Academia Scientiarum Imperialis Petropolitana ad annum*, 1726, with a dedication to Peter II. Until 1777 the papers were published in the Latin language only; they are now written sometimes in French and sometimes in Latin. Several volumes are published every year. Each professor has a house and an annual stipend of from \$1,000 to \$3,000. The celebrated mathematician Euler contributed largely to the mathematical papers of this body. In 1788 an insti-

tution, on the model of the *Académie Française*, was established at St. Petersburg, for the cultivation of the national language, but it soon amalgamated with the Imperial Academy. The *Académie impériale des beaux arts*, of St. Petersburg, was founded in 1765, by Catharine II, who endowed it richly. It now sends out pupils to Germany and Italy for education in the fine arts, and supports them during the period of their studies. Of Polish academies the chief is the Royal Academy at Warsaw, established in 1758. VIII. BRITISH AND IRISH ACADEMIES.—In Britain proper, the term society or association is the designation in use for bodies of learned men united in pursuit of some common object. They will be found enumerated under the head of Society. The word academy, in Britain, is reserved for institutions devoted to the cultivation of the fine arts. In Ireland the continental name has been adopted. The Royal Irish Academy, founded in 1783, at Dublin, has published transactions from time to time since 1788. The present Royal Academy of Arts, in London, originated in a society of painters, who obtained a charter in 1768, under the title of the Incorporated Society of Artists of Great Britain. This society took a new form in 1768, and became the Royal Academy of Arts. It consists of 40 artists, bearing the title of Royal Academicians, of 18 associates, and six associate engravers, and three or four honorary members: there is an annual exhibition of paintings, sculptures, and designs, open to all artists. This exhibition is so well frequented that the Royal Academy draws almost all its funds from the money paid by the public for tickets of entry. The Edinburgh Royal Academy of Painting was founded in 1754. A similar institution called the Royal Hibernian Academy was established in Dublin about 1832. An Academy of Ancient Music was established in London so early as the year 1710; but a disagreement among its members finally broke it up. Soon afterwards the Royal Academy of Music was formed for the performance of operas composed by Handel. Another disagreement broke this up in 1739. The present Royal Academy of Music was established in 1822. It is of great utility as a school of vocal and instrumental music. IX. AMERICAN ACADEMIES.—In America, as in Britain, the term academy is not generally used for learned societies. The American Academy of Arts and Sciences, Boston, founded in 1780, has published several volumes of transactions. The Connecticut Academy of Arts and Sciences, was founded in 1799. The Academy of Natural Science, Philadelphia, founded in 1813, is a flourishing institution, and has splendid collections of fossils, stuffed animals, birds, and Dr. Morton's collection of skulls, the finest on the American continent. The Pennsylvania Academy of Fine Arts, established in 1807, holds annual exhibitions at Philadelphia. The National Academy of Design, at New York, also has annual exhibitions. It is composed exclu-

sively of artists, and has a school of design attached. The Medical Academy of New York is in a flourishing condition. Its meetings are well attended, and attract much public interest. New York, following the Parisian example, called her new opera house the Academy of Music. This spacious building, capable of containing 4,500 persons, was opened in the autumn of 1854. Philadelphia has followed with a similar construction for similar purposes. It was inaugurated as the American Academy of Music in the winter of 1856-'57. Grand balls are held in both the New York and Philadelphia Academies, as also political meetings.

ACADIA, or ACADIE, otherwise Cadie, Acadia, or Accadia, the name of the peninsula now called Nova Scotia, from its first settlement by the French in 1604 to its final cession to the English in 1713. In the original commission of the king of France, New Brunswick and a part of Maine were included in Cadie, but practically the colony was restricted to the peninsula. Acadia was at least three times conquered by the English, and three times restored by treaty. The quarrels between the two nations were embittered by the desire of each to have exclusive possession of the fisheries. After the final cession the Acadians generally remained in Nova Scotia, though they had the privilege of leaving within two years, and, refusing to take the oath of allegiance, took the oath of fidelity to the British king. They were exempted from bearing arms against their countrymen, whence they were known in the colonies as the neutral French. They were allowed to enjoy their religion, and to have magistrates of their own selection. The French having lost Acadia settled the island of Cape Breton and built Louisbourg. There they carried on intrigues with the Indians, who kept up an irregular warfare with the English, the blame whereof was thrown upon the neutral French, who, in 1755, a few years after the English turned their attention to the colonization of Nova Scotia, suffered for the offences of their countrymen, of which they were doubtless innocent, since they were a simple agricultural people. Because they still refused to take the oath of allegiance, or to bear arms against the French or their Indian allies, to whom they were suspected of lending aid, and because by their peculiar position they embarrassed the local government, it was determined at a consultation of the governor and his council to remove this whole people, 18,000 souls, and disperse them among the other British provinces. For this harsh measure itself, there may have been some excuse; for the manner in which it was carried out there was none. The inhabitants were compelled to give up all their property, their houses and crops were burnt before their eyes, and themselves shipped in such haste that few families or friends remained together. In a few towns the Acadians discovered and escaped the plot, but most of them were scattered over

the continent, and Acadia became only a name in history and poetry.

ACALEPHÆ (Gr. *ακαλεφη*, nettle), a class of animals living in sea-water, some species of which possess the nettle-like property of irritating and inflaming the skin. The animals are invertebrate, of circular form, often shaped like an umbrella, of gelatinous consistency, and all included in the great division of radiata. By Cuvier the class was divided into two orders,—those which swim by the contractions and dilations of their body, and those which have air-bladders for the same purpose. The Portuguese men-of-war, jelly-fish, and medusæ, belong to the first order. Small fishes and marine animals, as crustaceæ, constitute the food of the acalephæ, which are seized by their long tentacula, and drawn into their mouths. The young appear as sprouts coming out from all portions of the parent animal.

ACAMAPIXTLI, king of the Aztecs, died about 1389, according to Mexican accounts. He is said to have come from the north, and left many traces of his civilizing influence behind him, such as roads, canals, and aqueducts.

ACANTHUS. Under this name have been described, by the classical writers, three different plants: 1. A prickly tree with smooth evergreen leaves, and saffron-colored berries, believed to be the common holly. 2. A prickly Egyptian tree, with a pod like a bean, supposed to be the acacia Arabica, or gum arabic tree. 3. A herb with broad prickly leaves, which lies in the winter, but shoots out afresh in the spring. The idea of the beautiful Corinthian capitals of the Greek columns is said to have been derived from a basket filled with the roots of this plant, set down carelessly by a girl, and covered with a tile; when the leaves, forcing their way through the crevices, and rising toward the light, until met by the underside of the cover, presented the effect of the foliage and volutes, simulated by the Grecian chisel. In modern botany acanthus is a genus of herbaceous plants found in the south of Europe, Asia Minor, and India, the commonest species of which is the *acanthus mollis*, a native of moist, shady places in the south of Europe. It has pretty foliage and large white flowers tinged with pale yellow. This was long supposed to be the classic plant of antiquity; but it has been shown that it does not exist either in the Peloponnesus, or in the isles of Greece, and the honor of having furnished the idea of the Corinthian capital is now attributed to the *acanthus spinosus*, which has deeply-cleft prickly leaves, and flowers tinged with pink instead of yellow. In England they are both half hardy perennials, needing protection from frost, and propagated by subdivision of the roots. In America they would probably endure the winter south of the latitude of Maryland; northward they would be greenhouse plants.—The word acanthus also signifies a thorn, and in composition, as *acanthopterygious*, the name of an order of fishes, thorny finned.

ACAPULCO, a seaport in Mexico, 185 miles S. S. W. from the city of Mexico, in lat. $16^{\circ} 50'$ N. long. $99^{\circ} 48'$ W. The town stands in the recess of a bay, near a chain of granite mountains. It is built of poor materials, and in a slight manner. Situated in a volcanic region it is constantly subjected to earthquakes, by which it is destroyed about every ten years. It is inhabited by some 4,000 people, principally colored, and is reputed to be one of the most unhealthy places on the Pacific coast. Lying in the torrid zone, and surrounded by mountains, it is intensely hot, and the inhabitants, particularly new-comers, are liable to dangerous fevers. On a high hill, commanding both the town and the entrance to the harbor, is the castle of San Diego, a fortress which has latterly been considered of little value, owing to the fact that it is commanded by the mountains on all sides, and may be speedily rendered untenable. The harbor is the best on the Pacific coast, being entirely shut in by high mountains, through which an entrance was cloven by an earthquake. Another opening was cut through the rocks on the west side, by the inhabitants, to let in the refreshing sea-breeze; but an undrained swamp, on the opposite side of the town, is still a source of disease. The bay has two entrances, formed by the Island of Roquette or Grifo; the little entrance, north of the island, is not quite a quarter of a mile wide at its narrowest part; the great entrance, between the eastern shore of the island and Point Bruja, on the mainland, is a mile and a half across. The bay is large enough to hold 500 ships, and so deep that vessels may sail close up to the rocks. Acapulco was anciently the focus of the eastern commerce of New Spain, and of all the Spanish empire. Magellan, the navigator, demonstrated by his discoveries, the superior advantages of a route across the continent to the Pacific, over that usually travelled around Cape Horn, and in consequence vessels discharged their cargoes at Acapulco and Vera Cruz, and the goods were transported on pack mules between the two ports, and reshipped. The establishment of the annual Manila galleon, in which was sent out \$1,000,000 in silver to purchase oriental products for the use of Spain and her American colonies, grew out of this discovery. In this galleon, priests went forth for the conversion of India, and soldiers to conquer new empires, and in it was brought to Acapulco the merchandise of China, Japan, and the Spice Islands. The buccaneers, too, lay in wait for it, and many marvellous stories are told of their exploits in levying contributions upon its costly freight. With its arrival traders from all parts of New Spain flocked thither to attend the annual fair, and the harbor was dotted with little coasting craft which came for their share of the silks and spices of the East. With the independence of Mexico this trade ceased, and Acapulco sank into insignificance. Its fortunes have revived, however, since the discovery of gold in California, and the Pacific mail steamers

now regularly touch here for coals, and merchant ships for supplies.

ACARNANIA, now Carnia, a province of ancient Greece, bounded on the north by the Ambracian Gulf, on the north-east by Amphiloehia, on the west and south-west by the Ionian Sea, and on the east by the river Achelous. It is mountainous, with numerous lakes and tracts of pasture, and its hills are still well wooded. Its ancient inhabitants were more akin in character and manners to their savage neighbors of Epirus than to the Greeks. Up to the time of the Peloponnesian war, they were a race of shepherds, continually engaged in strife and warfare, but of remarkable fidelity and steadfastness of character. Though possessing several good harbors, the Acarnanians paid little attention to commercial pursuits. At the present day the country is thinly inhabited, and little cultivated, notwithstanding its fertile soil and treasures of sulphur and coal.

ACARUS, the name of a genus of insects, commonly called mites. They belong to the spider family. They are all extremely minute, and mostly microscopic insects. Some are parasitic, as the itch insect, *acarus scabiei*. The different species infest brown sugars, meal, cheese, &c. To collections of insects and stuffed birds they do much injury. Camphor tends to keep them off, and corrosive sublimate is a still more effectual protection against their ravages.

ACASTUS, in mythology, son of Pelias, king of Iolcus. He took part in the Caledonian hunt and the expedition of the Argonauts. After the murder of his father, he drove Jason and Medea out of Iolcus, and instituted funeral games in honor of Pelias.

ACCELERATION, a constant increase of velocity, such as that of a falling stone, which, on being dropped, falls 1.98 inches in a tenth of a second, $16\frac{1}{2}$ feet in a second, $64\frac{1}{2}$ feet in two seconds, &c. The weight of the stone continually giving it increased velocity (while that already acquired is retained), is called an accelerating force. The heavenly bodies move with an accelerating motion as they approach other bodies and feel more strongly their attraction, whether that approach arises from the form of their orbits, or from slow changes in that form.

ACCENDONES, in ancient Rome, a class of gladiators, whose office was to animate and encourage the combatants.

ACCENT, a raising of the voice in speaking, by which in words of more than one syllable, one or two syllables are distinguished, and in sentences one or several words are pointed out, as the important part of the word or the sentence; the latter may be called *oratorical*, the former *grammatical* accent. Accentuating is an involuntary or spontaneous function of the organs of language, which greatly facilitates speaking as well as understanding what is spoken, and at the same time gratifies the natural taste and sense of beauty by rendering the language musical. This explains why there are languages which

possess a very weak and almost imperceptible accentuation, almost every syllable and word sounding nearly equally high and low, as for instance the Lithuanian and the Lettish; while others in their pronunciation sound almost like song or music, as the Italian and German. In general, the languages and dialects of mountainous regions are strongly, and those of flat and coast regions are little, accentuated. The accent is effected by giving the accentuated syllable a tone which is from one quarter tone to four or five tones higher in the musical scale than those not accentuated. Beside the accent there is another element imparting life and color to human speech—the quantity, or length and shortness of syllables in pronunciation. There are languages, like the Chinese, the Lettish, and some of the Indian languages, which are composed almost exclusively of long, and others, like the French, almost exclusively of short syllables. These may be said to exhibit at the same time only a weak accentuation. On the other hand, such languages as combine a lively accentuation with a great variety of quantity, like the old Greek, have always been considered as the most musical and powerful. There is a marked difference between the ancient languages, chiefly the Greek and Latin, as well as the ancient German and Slavonian, on the one hand, and the modern languages on the other. The former combined accent and quantity so carefully as to baffle all efforts of modern organs of pronunciation to pronounce them aright; but modern languages more and more neglect and sacrifice quantity in favor of accent. The more an acute accentuation prevails, the more the long, full sounding, and sonorous syllables are flattened, shortened, and corrupted, the short syllables contracted, and the rich musical color of the language lost. In this tendency, the English perhaps surpasses all others. The ancient languages distinguished three different grammatical accents: the acute (*accentus acutus*'), with a strong raising of the voice; the grave (*accentus gravis*'), with a lesser raising or even a sinking of the same; and the circumflex (*accentus circumflexus*'), a combination of the accent with a long pronunciation, of whose precise nature we are not informed. In the Greek, these signs were introduced by Aristophanes of Byzantium, when the language had already begun to die out. In Latin and Hebrew, the signs of accents were not employed until the languages had become dead, and had to be learned scientifically. Of the modern languages, only the Italian, French, Spanish, and modern Greek, use such signs. The Italian has two, with only an orthographical difference; the French three, while only the circumflex (*accent ouvert*'), really has the nature of an accent, the other two serving only to mark a different pronunciation of the letter *e*; the Spanish has only one accent sign. In almost all languages the *oratorical* accent rests on the verb or predicate, except when there is a particular stress to be laid on some other word, which then

takes the accent, and that strongly. Beside the accent, the arrangement of the words within the sentence may also help to lay a particular stress upon some one of them; in many languages the first place in a sentence being considered as the most important and most strongly accented, while a lesser stress falls upon the last word of every sentence.—There is another meaning of the word *accent* which is of French origin. A man may speak the French with grammatical correctness, may pronounce very well, give the right accent to every syllable, word, and sentence, and yet he may not have the true French or Parisian "accent." There is in every language, for almost every kind of sentences and periods, a certain melody and rhythm in pronunciation which cannot be scientifically demonstrated, but must be heard and imitated—and this is what Frenchmen sometimes call *accent*.—*ACCENT*, in music, is a distinction of certain portions or places of a measure, or of a period amidst a series of periods connected into a theme, or of a theme among several themes connected in a movement. The former may be called grammatical, the latter *æsthetic* accent. The accent is effected by imparting a somewhat greater force to the accentuated portion of the measure or period or theme than to the other portions. By means of the grammatical accent the music is rendered intelligible and satisfactory to the rhythmical or metrical taste and feeling of the hearer; the accent is in music what in painting is the light contrasted with the more shadowy portion of a picture, or perhaps the foreground in contradistinction to the background. The *æsthetic accent* may not only give prominence to one period or theme among others, but also to single tones and chords irrespective of grammatical proportion, because the meaning of the whole requires it; but it should never entirely obscure the grammatical accent, nor the grammatical construction be made unintelligible. A number of signs and marks have been invented to express the various shades of *æsthetic* accentuation, as for instance, *f* (*forte*), *ff* (*fortissimo*), *p* (*piano*), *pp* (*pianissimo*), *mf* (*mezzo forte*), *sf* (*sforzando*), *cres* (*crescendo*), *deces* (*decrescendo*), and many others. But much must be left to the skilful performance of the true artist who thoroughly understands the musical idea of the composer. It is in this that the ingenuity of the performer as well as of the composer is chiefly exhibited.

ACCEPTANCE, an agreement to receive something which has been offered. I. Of goods sold. Such a receipt by the buyer, as signifies an intention to keep possession and affirm the sale, and therefore precludes subsequent objections to quantity or quality. It may be implied from lapse of time or other circumstances. II. Of a bill of exchange. The act by which the party on whom a bill is or is to be drawn (the drawee) assents to the drawer's request to pay it, and engages so to do. A general acceptance is a promise to

pay the bill according to its tenor; a special acceptance is restricted by its terms. The holder is bound to receive the former, but not the latter. An acceptance may be oral or in writing; whatever gives credit to the bill is sufficient.

ACCESSORY, in criminal law, a participant in the guilt of a felony, who neither commits it himself (principal in the first degree), nor, being present, aids and abets at its commission (principal in the second degree). 1. *Before the fact*. One who procures, counsels, or commands the commission of a felony. 2. *After the fact*. One who knowingly relieves, comforts, or counsels the felon.

ACCIAJUOLI, the name of an illustrious Florentine family. I. **NICOLÒ**, grand seneschal of Naples, born at Florence, Sept. 13, 1810, died 1866. He made conquests for his master, King Robert of Naples, in the Morea, Sicily, and Italy, and was viceroy of Apulia at the time of his decease; was an intimate friend of Petrarch and Boccaccio, who corresponded with him. II. **BENIER**, nephew of the above, duke of Athens at the commencement of the 15th century. III. **DONATUS**, born 1428, in Florence, died 1470. An orator, philosopher, and mathematician. He translated some of Plutarch's Lives into Latin, wrote the lives of Hannibal, Scipio, and Charlemagne, and a work on the Moral and Political Philosophy of Aristotle. His fellow-citizens, in gratitude for his probity, gave portions to his two daughters, as the Athenians did for those of Aristides. IV. **FILIPPO**, born at Florence, 1637, died at Rome, Feb. 8, 1700. He travelled in all the four quarters of the world, was a composer of operas and their librettos, and inventor of stage machinery.

ACCIOI, **JOHN DE OREQUERRA**, a Brazilian historian and geographer, was born about the end of the 18th century. The Accioi family is of ancient literary distinction in its own country. We owe to them several works on the physical, historical, and political condition of Brazil, Para, and the country of the Amazon.

ACCIIUS, **LUCIUS**, a Latin tragic poet, son of a freedman, supposed to have been born U.C. 588. He wrote on the most famous Grecian legends, as Andromache, Medea, &c., but likewise took subjects from Roman history. It has been affirmed that he also wrote comedies, and his Annals are mentioned by Macrobius.

ACCLAMATION, an assenting cry of a deliberative body. A proposition is said to be carried by acclamation when the meeting does not wait for a show of hands or a poll, but expresses its assent by some shout such as "Aye."

ACCLIMATION, or **ACCLIMATIZATION**, the process of seasoning by which the constitution of a person removing to a foreign country is assimilated to that of a native of the country, and he is thus rendered less liable to suffer from its endemic diseases. Owing largely to the precautions which he is enabled to take, through his intellect and industry, man is confined to no

particular climate; he is found alike at the equator and within the arctic zone, and he is enabled with comparative impunity to pass, in a short time, from one extreme of temperature to another. When we look into the matter more closely, we find, that although mankind is spread over every known part of the globe, particular races of men seem best adapted to particular climates; that the white man is mainly confined to the temperate zone, while the torrid is given over to the black or colored families, and that the Caucasian race, transplanted within the tropics, loses the characteristics which distinguish it in its native climate, and becomes effete and degenerate. The children of English parents, born in India, if they remain in that country, are reared with great difficulty; their children are stunted in growth and debilitated in mind, while a third generation of pure Indian British progeny is unknown. (Thomson on Colonization of Tropical Climates, in Trans. of Med. and Phys. Soc. of Bombay, No. VI. Bombay, 1843.) The Portuguese who have been long settled in India, are a feeble and degenerate race, scarcely keeping up their own number, and in tropical America, where the climate is not modified by mountain ranges or elevated table-lands, the native *white* inhabitants are few in number, and bear little resemblance to the hardy and enterprising Spaniards from whom they are descended. Negroes, on the other hand, transplanted to a rigorous climate, perish in great numbers from pulmonary disease. But though a race may not flourish in an uncongenial climate, is this true of the individual? Does not the North American or European, after escaping the dangers of the first or second year's residence within the tropics, obtain a certain degree of immunity from their endemic diseases? Capt. (now Col.) A. M. Tulloch, in a "Report on the sickness and mortality of the troops in the West Indies," (Journal of the London Statistical Soc., Nov. 1838,) tabulating for a series of years the mortality of the British troops on that station, finds that of those under one year's residence, the annual ratio of mortality was 77 per 1,000 of those above one, and under two years' residence, the ratio was 87 per 1,000, while in those who had been longer than two years resident in the islands, the ratio rose to 98. In commenting on these results, so contrary to commonly-received opinions, Capt. Tulloch shows that an extended investigation into the vital statistics of the officers employed in the service of the E. I. Company, both in military and civil life, leads to conclusions precisely identical; and that the climate which proves so fatal to the newly-arrived soldier or civilian, proves fatal in a still higher degree to those who have been exposed for years to its influence. When we reflect that the principal mortality in tropical countries arises from malarious diseases, these results are a matter of no surprise. No length of residence confers immunity upon those who live in a highly malarious district; exposure to the air of the rice-

swamp in South Carolina, or of the Pontine marshes near Rome, is as fatal, during certain seasons, to those who have passed their lives in their neighborhood as to the travelling stranger. There is one disease which affords an apparent exception to the foregoing statements, the yellow fever. This depends upon the fact that, like measles, small pox, and typhus fever, the disease is apt to occur but once in the same individual. Dr. Warren Stone, of New Orleans, says emphatically, "to be acclimatized, is to have the fever," that one attack secures from a second, nor is the immunity lost by a protracted residence in a different climate. Dr. Dickson, of Charleston, S. C., has stronger faith in the protective influence of acclimation, though he admits "that our own children are also liable, in an undefined degree, between the ages of two and sixteen and eighteen," to attacks of what in Charleston is termed strangers' fever; he also states that an attack of the fever in Gibraltar or New York, if it does not give a perfect protection against a second attack in Havana or Vera Cruz, still it affords a degree of security "very notable, and fully proved." Of the effect of a northern climate upon the natives of southern countries, our experience is not so large or accurate. The current of emigration sets steadily from north to south, while the counter-current is scarcely perceptible; yet we can safely affirm that the effect of removal to the north upon the white inhabitant of the south, is, as a general rule, beneficial, and that his chances of health and longevity are improved by it. It is equally certain that the prospect of life of the natives of the north who have spent a large part of their active life in a tropical climate is very much improved by a return to their native land. The average rate of mortality among officers serving in India at the age of 40 is 8.86 per cent., while at the same age, the average mortality of those who have returned to England is only 1.47 per cent. (Christie on "The rate of mortality among officers retired from the Indian army," *Jo. of Statistical Soc.* 1838.) It is singular that the native of the West Indies commonly suffers less from the cold, during his first winter at the north than the inhabitants of the country themselves. It was noticed during the Russian campaign of Napoleon, that the troops who were natives of Italy and the south of France, bore the dreadful cold, during the retreat from Moscow, better than those who were natives of the north of Europe, and facts of a similar nature were observed during our war of the Revolution, and in the thirty years' war of Germany. While the health of the white native of the south is unimpaired by removal to a colder climate, the contrary occurs with the black and colored inhabitants of the tropics. Suffering less from malarious diseases and yellow fever than the whites, they are much more prone to pulmonary complaints. In the campaign in Egypt in 1801, a force of sepoy, 8,000 strong, served for 16 months; during this period, the mortality

among them rose from one and a half per cent. per annum its standard in their native land, to ten per cent. In 1810 a body of African troops (4th West India regiment) were quartered at Gibraltar, but they lost so many men by consumption, that it was found necessary to withdraw them, and remove them to the tropics. The Sierra Leone Company, desirous of spreading civilization and Christianity in the colony, transported a number of children to England for their education. During the first year, according to Dr. Pearson, they were generally well, but fell off in the second, and the third generally proved fatal. Though the benefits to be derived from acclimation are, to the extent commonly claimed for them, in a great degree illusory, yet certain precautions may be taken, which will greatly diminish the dangers incurred by residence in a hot and unhealthy climate. Among these are the strict observance of temperance, both in eating and drinking, the avoidance of exposure during the heat of the day, and before daylight and after sunset, the wearing cotton, or better, thin flannel next the skin, and the choice of a dry, elevated site for a residence, taking care to sleep as far above the surface of the ground as possible. To these may be added, in malarious localities, the occasional use of small doses of the sulphate of quinine, as a prophylactic. The efficacy of this latter practice has been repeatedly tested in the British ships stationed on the African coast. The men employed on boat duty, a service of eminent risk and exposure, have had administered to them daily some three grains of quinine, dissolved in a small quantity of wine. The officers, among whom, of course, the taking of the dose was not enforced, sometimes refused it, on account of its nauseousness. In repeated instances, in such cases, they have taken the fever, while the men escaped.

ACCOLADE, a part of the ancient ceremony of conferring knighthood. Some have supposed that the particular act which it referred to was the embrace which was bestowed on the new-made knight, but it is more generally believed to have been the dubbing, or light blow, given to his cheek or shoulder. The custom is of great antiquity, and has been derived by some antiquaries from the blow which the Roman slave received on manumission.

ACCOLTI, BENEDETTO, a celebrated Italian lawyer, born at Arezzo in 1415, died in 1466, became secretary of the Venetian republic in 1459. He is said to have had so fine a memory, that having heard an ambassador of Hungary deliver a Latin speech before the Senate of Florence, he repeated it afterwards, word for word. He wrote a work on the Crusades, from which Tasso drew the text of his *Jerusalem Delivered*. II. BERNARDO (son of the preceding), poet, born 1465, died about 1535. When he recited his verses his fellow-citizens would shut their shops, illuminate their windows, and call out the city militia to keep order in the hall. Leo X. appointed him writer and

epitomist to the Holy See. III. FRANCESCO, brother of the last named, lawyer, born at Arezzo in 1418, died at Sienna in 1488. He was called *the prince of lawyers*. On the accession of Pope Sixtus IV. he expected to be raised to the dignity of Cardinal, but Sixtus feared lest this step would hurt the progress of jurisprudence. He was secretary to Francesco Sforza, Duke of Milan, for five years, and amassed a fortune. IV. PIERRO, born at Florence in 1497, also son of Benedetto, died in the same city in 1549. Under Leo X. he filled the office of apostolical epitomizer, and drew up the celebrated Bull against Luther which condemned forty-one of his theses. He was secretary to Clement VII., Cardinal, in 1527, legate in 1532.

ACCOMMACO, a county in Virginia, bordering on Maryland, and forming with Northampton county, from which it was set off in 1672, the peninsula on the eastern side of Chesapeake bay. It was named after an Indian tribe, which frequented that region. It has an area of 480 square miles, and owns a number of small islands off the coast. The surface is level and the soil light and moderately fertile. Indian corn, potatoes, wheat, and wool, are its staples. By the assessment of 1850 its real estate was valued at \$2,796,252; by that of 1856, at \$2,948,529, showing an increase of 5 per cent. The distinguished politician and orator, Henry A. Wise, was born in this county. Population in 1850, free white 9,608, free colored 3,295, slave, 4,987; total 17,890.

ACCOMPANIMENT, that part of a musical composition, performed in connection with the leading or principal part, to which it is to be kept subordinate. It may move either with the voice or with a single instrument, as a musical accessory, for the purpose of giving beauty and symmetry to the performance, and thereby adding to its general effect, and is not in any degree susceptible of embellishment. A good accompaniment is indispensable to a musical composition of any pretension, and a just and proper rendering of it a matter of peculiar nicety, which only a thorough appreciation of harmony and proportion in art can produce. The principles upon which the effect of an accompaniment rest are still so unsettled that its composition is frequently more difficult than that of the melody, and composers, not deficient in melodic ideas, have sometimes betrayed a degree of feebleness or baldness in their works, from a neglect of this important accessory.

ACCORAMBONI, VIRGINIA, an Italian poetess, died Dec. 22, 1585. The story of her life is a tragedy, and gives a fearful picture of Italian manners in her time. She married Francesco Peretti, nephew of Cardinal Montalto, but nevertheless inspired Paolo Orsini, Duke of Arcenno, with a violent passion for her charms. Arcenno killed his own wife with his own hand and then despatched Virginia's husband. Dying suddenly on the banks of Lake La Garda, Arcenno left her all his property, to

the prejudice of his son by his former wife. One of the Orsini, angry at this will, determined to avenge his family. He penetrated into Virginia's apartments and stabbed her instantaneously. He was captured and strangled within the prison walls. Virginia's poems have been discovered.

ACCORD, an agreement in pitch and tune between two or more sounds, by which an agreeable effect is produced upon the ear. The word is supposed to be derived from the French *corde*, signifying a string, from the unison of sound when two strings of a musical instrument are struck at the same time. It is also used for concord, and has the same meaning.

ACCORDION, a musical instrument, the sounds of which are produced by the action of wind from bellows upon metal springs. It is played altogether by the hands, in which it is held, and the performer has the means of increasing or diminishing the volume of tone at pleasure.

ACCORSO, FRANCESCO, lawyer, born at Florence about 1182, died at Bologna in 1260. He united and arranged in one work, to which he gave the title of *The Great Gloss*, the almost endless commentaries on the Code, Institutes, and Digests.—MARIANGELO, a learned critic, born at Aquila, in the kingdom of Naples, in the 16th century. He distinguished himself by his perseverance and diligence in the discovery of ancient manuscripts. Knowledge of classical literature was greatly improved and advanced by his labors.

ACCRA, a country in Western Africa, on the Gold Coast, in lat. 5° 30' N. long. 0° 12' W. over which England, Holland, and Denmark exercise jurisdiction. Fort St. James was recently erected in the English colony. It has a very limited territory, and a negro population of about 3,000. Crevecoeur, the Dutch fort, situated about one mile to the E. of Fort St. James, is an ancient settlement, which was destroyed by the English in 1782, and partially rebuilt in 1839. Accra is said to be one of the most salubrious localities on the coast.

ACCOUBATION, a table posture, between sitting and lying, invented by the Greeks and adopted by the Romans and Jews. About the low, round dining table were placed two or three couches, furnished with more or less sumptuous draperies, on each of which lay usually three persons, on their left sides, resting either their heads or elbows upon pillows, the feet of the first being behind the back of the second and those of the second behind that of the third. The middle place was considered the most honorable. Though this position was at first considered immodest for Roman ladies, they soon came to indulge in it. But it was never permitted to children or persons of mean condition.

ACCUM, FRIEDRICH, chemist, born at Bückeburg, 1769, died in Berlin, 1838. In 1793 he went to London, where he was appointed, in

1801, professor of chemistry and mineralogy in the Surrey institute. Being accused of purloining books and engravings from the library of the Royal Institution, with which he was connected, he returned to Germany, and in 1822, was appointed professor in the school of Industry and the academy of Building in Berlin. He is celebrated on account of his exertions in the introduction of gas-lights, in prosecution of which object he entered into partnership, while in London, with the enterprising German print-seller, Ackermann. His principal work, "A practical Treatise on Gas-lights," was published in 1819, and exerted a great influence in introducing the use of gas-lights into the principal cities of England. He also wrote a work on "The Adulteration of Food," which excited much attention.

ACCUSATION, not a technical term in English or American law, signifies, in the civil law, a motion before a judge for the institution of criminal proceedings, the whole conduct whereof is taken by the accuser. Among the Romans and the old Germans it was in use almost to the exclusion of other methods of prosecution, but now little but its form of process is retained in Germany or France, the inquiry, in which the judge has control of the case, having taken its place, or a mode of procedure derived from the English practice of employing a state's attorney.

ACCUSATIVE, in grammar, is the fourth case of Latin nouns, and answers to the objective case in English. *Lacedæmonii bellum gesserunt*, the Lacedæmonians waged war; in this sentence *bellum* is in the accusative case, governed by the transitive verb *gesserunt*.

ACELDAMA, the field which was purchased with the money for which Judas betrayed Christ. It was afterwards used as a place of burial for strangers.

ACEPHALI (headless, from *a*, without, *κεφαλή*, head), a name first applied to the enthusiastic sect of Egyptian Monophysites, who refused to recognize the patriarch Peter Mongus, on account of his having acknowledged the edict of alliance issued in 482 by the emperor Zeno. The term afterwards became more general, and was applied to bishops who were exempt from the jurisdiction of their patriarchs.

ACERBI, GIUSEPPE, Italian traveller, born near Mantua, May 3, 1773, and died there Aug. 25, 1846. He travelled to the North Cape, and published an account thereof in English and French. In 1816 he started the *Biblioteca Italiana*, which has been of much service to Italian literature. In 1826 he became Austrian consul in Egypt, where he made valuable researches, and sent consignments of precious antiquities to various German and Italian museums.

ACERNUS, the Latin name of a Polish poet, born 1551, died at Lublin in 1608. He wrote in Polish and Latin, and was called the Sarmatian Ovid. His true name was Klonowicz. He studied at Cracow, and became mayor of Lub-

lin. Most of his works have been burned by the nobles or the Jesuits, and the rest are scarce.

ACERRA, an altar erected among the Romans, near the bed of a deceased person, on which incense was daily offered until his burial, probably to overcome any offensive odor from the corpse.

ACESIUS, bishop of Constantinople in the reign of Constantine, was a rigid believer in the Novatian doctrine, according to which those who have apostatized during persecution, or been guilty of any mortal sin after baptism, are to be denied re-admittance to the church communion, even after exhibiting proofs of sincere repentance.

ACETATES, combinations of acetic acid with basic oxides. These salts are all soluble in water, and are easily decomposed by the substitution of a stronger acid, or by heat. Sulphuric acid poured upon them expels the acetic acid, which gives out its peculiar vinegar odor. Their solutions give a deep yellow color, with a colorless solution of sesqui-chloride of iron. Among the most important of these are the following: *Acetate of Ammonia*, or spirits of Mindererus, which is used as a diaphoretic in medicine, made by saturating acetic acid with ammonia. *Acetate of Alumina*, or *Red Liquor*, used extensively as a mordant for vegetable colors in the print works; does not crystallize. *Acetate of Copper*; of this there are four different combinations of its ingredients. They are used in dye works, and come under the name of verdigris as a fine paint. *Acetate of Iron*, or *Iron Liquor*, and the *Sesqui-acetate*, used in dyeing and printing, and for medicines. *Acetate of Lead*, *Sugar of lead*, contains 58.95 per cent. oxide of lead, 26.84 acetic acid, and 14.21 water; prepared pure by dissolving litharge in acetic acid; used for dyeing purposes, and for various medicinal preparations. *Acetate of Lime*, prepared as a crude product to fix the acetic acid distilled from wood; used to prepare from it the other acetates. It contains variable proportions of lime, acetic acid, water, and tarry matters. *Acetate of the Oxide of Ethyle*, *Acetic Ether*, colorless fluid, of pleasant odor and taste; consists of 8 equivalents of carbon, 8 of hydrogen, and 4 of oxygen; dissolves resins, sulphur, phosphorus, &c.; the ether is used in medicine, and may be used for preparing varnishes. *Acetate of Manganese*, used in dyeing. *Acetate of Soda*, used in medicine.

ACETIC ACID, the acid which gives to vinegar its peculiar properties. Its composition is

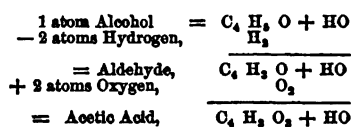
Atomic Weights.

4 Equivalents of Carbon, . . .	24	=	40 per cent.
8 Equiv. of Hydrogen, . . .	8	=	5 " "
3 " " Oxygen, . . .	24	=	40 " "
1 " " Water, . . .	9	=	15 " "

Its chemical formula is $\text{H}_2\text{O}, \text{C}_4\text{H}_8\text{O}_3$.

Anhydrous acetic acid has also been lately prepared. It is an oily, colorless fluid, with a strong smell, does not mix with water except at high temperature, acts as a caustic upon the

skin, and refracts the light powerfully. When boiled its vapor is inflammable.—In its common form of vinegar, acetic acid has been known from the remotest times. It is a product of the acetic fermentation of many vegetable and animal juices. It is also found naturally formed in some plants; and it is a product of the distillation of woody matters, without their undergoing the fermenting process.—When alcohol is exposed under certain circumstances to the action of the air, it absorbs oxygen and passes into acetic acid. In this change aldehyde is first formed by the abstraction of two atoms of hydrogen, which unite with oxygen to produce water. The process is well represented by Dr. Ure as follows:—



This change takes place when oxygen is supplied, minutely distributed through some substance; and it then goes on after the manner of a slow combustion. Spongy platinum condenses in its pores several hundred times its volume of atmospheric air. Alcoholic vapor passing in contact with this, is converted into acetic acid, when the temperature is kept at from 68° to 86° . This simple and beautiful operation has been applied in Germany to the manufacture of acetic acid on a large scale. In a case of glass, or one of wood with a roof of glass to admit the heat of the sun, shelves are arranged a foot apart, and on these are placed rows of shallow porcelain saucers. These contain the dilute alcohol; and over its surface, not more than two inches, is supported a watch glass, in which is a piece of spongy platinum—one to each saucer. Strips of porous paper hang from each shelf, their lower ends dipping into the alcohol, thus increasing the evaporating surface. As soon as the evaporation commences the temperature rises, and acid vapors form, which condense and are collected in the saucers or trickle down the sides of the case into a receiver below. Air must be admitted to supply the place of that consumed. The spongy platinum undergoes no change in this process. The whole of the alcohol is converted into acetic acid of the purest kind. One pound may thus be obtained daily from a case of twelve cubic feet capacity, and seven or eight ounces of spongy platinum. Vegetable matters in liquid undergo the acetic fermentation, and produce vinegar, only when alcohol is present and air is admitted. There is another fermentation called the lactic, which goes on when neither alcohol nor air is present, converting cabbage, starch, and saccharine matters, into lactic acid, which has been mistaken for the acetic fermentation. All fermentations depend upon the bringing together of some organized body or ferment with a fermentable organic matter. In the acetic fermentation, the ferment is the albuminous

floating substance called the mother of vinegar. If some nitrogenous substance is present, as yeast or dough or vinegar itself, it appears as the process begins, and continues to be formed to its end. It seems to act like the spongy platinum in assisting the action of the air upon the alcohol; being probably a cellular plant, which absorbs into its pores the oxygen of the air in a condition to unite with the hydrogen of the alcohol. Some bread soaked in vinegar or sour dough, may be substituted for it in the commencement of the process. The effect of fermentations is in general to break up existing compounds, and form others less complex; but the acetic fermentation is the only example of this process resulting in a more complicated compound—oxygen of the air is united to the elements of alcohol, as if the process were one of combustion. As this fermentation depends on the presence of alcohol, it must have been preceded by the vinous fermentation, in which saccharine matters have been converted into alcohol. A warm temperature is requisite for it, and this is increased by the heat evolved by the chemical action. The process is completed, when all the alcohol is consumed or converted into acetic acid. All substances that can undergo the vinous fermentation and produce alcohol, are fit for the manufacture of vinegar, and the variety of vinegar produced differs according to the substance employed. Thus there is wine vinegar, alcohol vinegar, cider vinegar, beer or malt vinegar, sugar vinegar, &c. Wood vinegar, as already stated, is the result of a different process. These vinegars, though of the same chemical composition, possess quite different flavors, which are derived from the different substances from which they are prepared. Vinegar made of wine retains some tartaric acid and acetic ether, which gives to it its agreeable aroma. This variety of vinegar is prepared on a large scale in the wine-growing countries, particularly at Orleans in France. For making the best vinegar the principle of the operation consists in adding good wine to a cask already partly filled with vinegar, to which air is admitted. When this is converted into acid, more wine is added, and so on till the cask is filled with acid. A quantity is then drawn off equal to the wine added; and the process is repeated. If the temperature of the factory exceeds 84° , there is danger that a portion of the alcohol, when in the state of aldehyde, or half converted into vinegar, will be lost by evaporation, and the liquor be deprived of so much of its strength. At a much lower temperature the process goes on too slowly. The large *vinaigrieres* are sometimes in fields with a southern exposure. Long rows of casks are arranged on low frames, and in the summer season the operation is successfully prosecuted without artificial heat. With proper attention these casks or "mothers" work off annually double their contents of vinegar. The quick method of manufacture consists in the use of two casks set on end, one quite filled

with alcoholic liquor and the stalks and husks of grapes or beech wood shavings, and the other half filled with the same. Every twelve hours half the liquor from the full cask is poured into the other one, and in this the acetifying process goes on with rapidity and the evolution of much heat. In a still more perfect arrangement, the vinegar mixture is made to filter slowly through beech wood shavings, which have been prepared by scalding them repeatedly with hot water, to dissolve out all soluble matters; these are placed in the cask till they fill it two-thirds full. The vinegar mixture is made to drip down little threads, which are placed through numerous holes in a false head, by which it is distributed through all the shavings. Air is admitted by holes made through the staves around the lower part of the cask, and circulates among the shavings, passing out at the top of the cask, through tubes which penetrate the false head. The mixture used consists of 20 quarts alcohol, 40 of vinegar, and 120 of water, or $15\frac{1}{2}$ quarts of alcohol, 20 of vinegar, and 187 water. The water is heated to 100° or 104° , then the vinegar and alcohol are added. This mixture is poured on at the rate of three to five quarts every half hour. It is drawn off at the bottom, more alcohol added, and returned to the cask, and so on till the vinegar is very strong. The process may be completed in three days, but usually requires a longer time. By adding all the alcohol at once, there is risk that some of it will not be acidified. This may happen from want of sufficient air, or from too great heat causing the aldehyde to evaporate. Older vinegar is the most common variety in this country. It is made from poor cider, fermented by the addition of some vinegar and a piece of dough or lean meat. In Great Britain malt is the common material employed. This is the barley which has become sweet by incipient germination. The saccharine matter extracted by water may be used to make beer, alcohol, or vinegar. In the vinegar process it is pumped repeatedly into casks in which are placed the stems and stalks of grapes, through which it filters. The process does not vary greatly from that of making wine vinegar. It is conducted in a few factories of very great extent. The whole quantity produced in Great Britain annually is estimated at about 3,000,000 gallons, of which more than one-half is made at five establishments in London. Beer, ale, and porter, that have become sour and hard, are found to be quite unfit for the manufacture of good vinegars, and are rejected in the best establishments. Beer vinegar contains the constituents of beer, as the phosphates of lime and magnesia, gum, and an extractive substance which gives it its color. Sugar vinegar is made from sugar and water, and the addition of some kinds of fruits, as gooseberries with yeast and raisins. It is conveniently made for the table by dissolving three pounds of sugar in a gallon of water, covering it loosely with a cloth, and adding yeast, or

instead of yeast the mother of vinegar—the plant *Mycoderma-aceti*. Alcohol is formed, and this is soon converted into acetic acid. It has been ascertained by Dr. Stenhouse that acetic acid may be produced from the sea-weed. This is made to ferment at a temperature of 96° . Hydrate of lime is added for the purpose of keeping the mass slightly alkaline. This absorbs and fixes the acetic acid, and the product is an acetate of lime obtained by filtering off the liquid, evaporating the residue to dryness, and then burning off the organic matters. Wood vinegar, or pyroligneous acid, is one of the products of the destructive distillation of woody matters. It is obtained by charring wood either in iron retorts, which may hold half a cord or more, or as is done in this country, in large kilns holding sixty cords, such as are used for preparing charcoal for blast furnaces. The gases are conveyed from the retorts or kilns through a condenser, and the liquid products then drop into cisterns, in which the tarry matters subside. The liquors are then boiled down in iron kettles, in which some slacked lime is placed. This is converted into a crude acetate of lime, which is collected and dried, and sold to the calico-print works, and other establishments, to be converted into the acetates they require. The uncertain demand for the product makes the business very uncertain, and it has rarely been made profitable, even when conducted as an incidental operation to the charcoal manufacture. The strength of acetic acid may not always be ascertained from its specific gravity. This varies with the foreign substances present that are derived from the materials used. The best method is to saturate the acid with dry carbonate of soda; and for every fifty-four parts of this salt added to neutralize the acid, there must be fifty-one parts of dry anhydrous acid present. As the equivalent of carbonate of lime is fifty, which is very near that of dry acetic acid, it may very conveniently be used in the form of pure marble as a direct means of estimating the quantity of acid present by the weight dissolved from a lump of it suspended in the liquid, till this is neutralized. A standard solution of caustic soda has been recently adopted in England as an excellent means of testing the strength of the acid. Vinegar may be strengthened by freezing and removing the icy part, which consists mostly of water. Heating it to a temperature between 212° and 220° , has the same effect, the water going off, but the acid does not escape under a temperature of 240° . It is impaired in quality by standing exposed to the air. Another variety of the ferment plant is produced in it called the *Mycoderma-vini*, which sometimes causes whole vats of vinegar to pass into water. Vinegar aids digestion by its solvent action upon albuminous and proteine compounds. Hence its general use with indigestible kinds of food. The salts of vinegar, used as smelling salts, consist of sulphate of potash impregnated with acetic acid, and scented

with oil of rosemary or lavender. It is also used for preserving organic substances from decay. For this purpose wood vinegar, which contains essential oils and some creosote, is the best.

ACEVEDO. I. ALONZO-MARIA DE, Spanish jurist, who lived in the latter half of the 18th century. He is the author of a treatise on the Abolition of Torture (Madrid, 1770), and was a contributor to the academies of Madrid and Seville. II. CHRISTOVAL DE, painter, a native of Murcia, who lived at the end of the 18th century. He devoted himself to illustrating the events of sacred history. III. FELIX ALVAREZ, one of the principal actors in the Spanish revolution of 1820. He declared for the party of Quiroga and Riego, surprised the city of Santiago, and had the constitution proclaimed there. As he advanced with a fraternizing speech to a body of the royal militia, he was shot dead. The junta declared that he had deserved well of his country.

AOHAIA, one of the ancient divisions of the Peloponnesus, extending along the coast of the Gulf of Corinth. Its greatest length from east to west is about 65 English miles. It varies in breadth from 12 to 20 miles. Patras, formerly Patræ, is the only Achæan town that maintains any importance. After the Roman conquest of Greece and Macedonia, the province of Achaia included all Peloponnesus, with Northern Greece south of Thessaly. In the present kingdom of Greece it constitutes a division for the purposes of administration.

ACHÆAN LEAGUE. The inhabitants of Achaia were a very inconsiderable member of the Hellenic family, until about 251 B. C. They formed twelve separate self-governing communities, united together only by the religious bond of a common temple, common festivals, and common ancestry. In repelling the Persian invasion of Greece they took no part; during the Peloponnesian war they sent contingents to Sparta, but are only named as part of the Peloponnesian allies of the Lacedæmonians. They made no resistance to Alexander or the Macedonian adventurers who succeeded him. They were compelled to receive Macedonian garrisons. It was not until Athens, Thebes, and Lacedæmon, had been subdued or humbled by Macedonian supremacy, that the insignificant Achæians became illustrious. When the Macedonian monarchy was reeling beneath the invasion of the Gauls, four Achæan towns formed a league for mutual protection, B. C. 281. Soon afterwards Agium ejected its garrison, and some others forced their tyrants, who governed in the Macedonian interest, to lay down their authority. In 251 B. C. Aratus, the Sicyonian, brought round his native town to the Achæan League, and got himself elected head of the confederacy. Corinth was freed from its garrison in 243 B. C. by the aid of the League, and was admitted a member. Megara, Epidaurus, Træzen, and the Arcadian cities, joined soon after. In 208 B. C. Philopœmen, of

Megalopolis, succeeded Aratus as general of the League. At this time, and especially after the total defeat of the Macedonian monarch, at Cynoscephalæ, it was the only powerful state left in Greece, and the only possible bulwark against Roman power. When Sparta joined the League in 191 B. C., it included almost all the cities of the Peloponnesus, together with Athens, and several cities of northern Greece. For fifty years the Achæan confederation, by wise diplomacy, and success in the field, maintained the cause of Hellenic independence, and delayed the evil day of submission to Rome. At last the Roman senate succeeded in getting grounds of quarrel with the League, and sent Mummius over to complete the subjugation of Hellas. This was done 146 B. C., by the defeat of Disius, the general of the confederates, before the walls of Corinth. All Greece was then made into a Roman province, under the name of Achaia. The history of the rise, culmination, and fall of the Achæan League is one of the most honorable and even romantic chapters of Greek history. The Achæan confederacy is highly interesting to scholars as the most perfect example of the federative system bequeathed to the world by the Greeks. Its constitution has been the subject of much investigation. Each state or city had one vote, whether large or small, and no more; retained its power of internal legislation, and its separate coins, weights, and measures, though the federal government had also its coins, weights, and measures, which were uniform. The right of intermarriage without loss of the children's citizenship, the right of holding property, and of importing and exporting on favorable terms, existed between the several cities of the federation, but was eventually taken away by the Romans, by way of punishment for resistance to their policy. The general assembly was held twice a year, but extraordinary assemblies were sometimes called. At the spring meeting the strategos, or commander-in-chief, the hipparchos, or master of the horse, and ten other ministers called demiurgi, were elected. It seems probable that every citizen who could afford to attend might be present at these assemblies; but all the citizens of any one city could only throw one vote, a fact which made the larger cities of the confederation, such as Corinth, discontented. Had such a confederation as this existed in the age of Philip and Demosthenes, the Macedonian conquest would never have taken place, and it is not improbable that Greece would have grasped that political sceptre of the ancient world which it was left for Rome at a later day to obtain. As it was, the Achæan League was a century and a half too late. Rome had, in the time of Philopœmen, already gained too strong a position in Greek politics to be driven back.

ACHÆANS, mentioned in the Iliad as a generic term for the Greeks. The wall-greaved Achæans, the long-haired Achæans, are terms employed to designate the whole Hellenic host

before Troy. Their mythological ancestor was Achæus, son of Xuthus, and grandson of Hellen.

ACHÆMENES. I. The ancestor and founder of the royal dynasty of Persia, the Achæmenides. In Latin poetry, *Achæmenius* is often used as a synonym for *Persicus*, Persian. II. Son of Darius I. and brother of Xerxes, was made by the latter satrap of Egypt, and accompanied him in his expedition against Greece, B. C. 480, when he commanded the Egyptian fleet. He fell in Egypt, B. C. 480, in an unsuccessful attempt to quell the revolt of Inarus, a Libyan chief.

ACHAINTRE, NICOLAS LOUIS, philologist, born in Paris, Nov. 19, 1771, died in 1830. He edited many Greek and Latin authors with the *Notæ Variorum*. Firmin Didot was the enterprising publisher who coöperated with Achaintre in reviving the cultivation of the dead languages in France.

ACHARD, FRANZ KARL, natural philosopher and chemist, born at Berlin, April 28, 1754, died April 20, 1821. He devoted himself to the development of the beet sugar manufacture, repeating and improving upon the experiments of Marggraf, and was assisted in his researches by the king of Prussia. The results of his investigations were published in 1799 and 1800, but found neither encouragement nor imitation, upon which account the king presented him with a farm where he could continue his studies. In connection with Neubeck, he spent six years of laborious endeavor before he discovered the true method of separating the sugar from the plant. His final success was so great, that in 1812 the king established a school to teach the process. At the time of his death he was director of the class of physics in the Academy of Sciences in Berlin.

ACHARIUS, ERIK, naturalist, born at Gefle, Sweden, Oct. 10, 1757, died at Wadstena, Aug. 13, 1819. In 1773 he commenced his studies at Upsal, under Linnæus, and afterward repaired to Stockholm, where he made a collection of drawings of subjects in natural history for the Academy of Sciences. In 1782 he took the degree of doctor of medicine at Lund, and practised his profession in Scania until 1789, when he was appointed provincial physician at Wadstena, which office he held with the title of professor until his death.

ACHARY, Mohammedan chief of the sect of Acharians, born about 880, died 936 A. D. He taught absolute predestination, and that God acts by general and not by special laws. At the same time he maintained that men are free agents, and acquire merit according as they act in conformity with the universal laws.

ACHATES. I. The companion of Æneas in his flight from Troy, and in his subsequent wanderings, according to the account given by Virgil. He is always termed *fidelis Achates* (the faithful Achates), whence the phrase has passed into a proverb applied to any

faithful confidant in a subordinate position. II. In ancient geography, a river in the south of Sicily, between Camarina and Gela, now the Dirillo. According to Pliny it was the place where the first agate was found, hence the derivation of the word agate.

ACHEEN, a small independent sovereignty in Sumatra, on its north-western extremity. As early as 1509 the Portuguese visited this country, and in 1602 the English, in order to obtain a continuous supply of pepper, entered into a commercial treaty with the king. The East India Company, under the protection of the reigning queen of Acheen, in 1659 established a factory at the capital; but it was eventually removed to Benoolen, on the south coast of Sumatra, where the pepper was mainly collected. Sir Stamford Raffles in 1819 secured to the East India Company and the British government, by treaty, the right of freely trading to all the ports of Acheen, on condition of paying certain fixed charges and duties, the sultan at the same time covenanting "not to grant to any person whatever a monopoly of the produce of the country, and to exclude the subjects of every other European power, and likewise all Americans, from a fixed residence in his dominions." The company in return, made a loan of \$50,000 to the king, and gave him six pairs of brass field-pieces, with a supply of ammunition and military stores. The government of Acheen is an hereditary monarchy, the power of the king or sultan being limited only by the power of his greater vassals, while the people have but little political liberty. The kingdom is divided into 190 small districts, and contributions of grain, cattle, and money, sent from them to the king's store, together with a considerable amount of custom-duties on imports and exports, constitute the revenue of the state. This part of Sumatra is comparatively healthy. The people are also taller, stouter, and darker, than the other Sumatrans. Nationally, they are commercial adventurers, strict Mohammedans in faith, speaking one of the general dialects of the Eastern islands, and writing in Malay characters. Acheen has still some trade with the Coromandel coast, furnishing gold dust, raw silk, betel nut, pepper, sulphur, camphor, and benzoin, in exchange for salt and cotton goods. They manufacture a few silk goods, and a good deal of thick cotton cloth, and striped and checkered stuffs, which they import to the Malay peninsula.—**ACHENK,** capital of the above, stands about a league from the sea, on a river that empties at Acheen-head. The roadstead is good, being safely sheltered by several small islands. A bar at the mouth of the river prevents all but small vessels of three or four feet draught from entering it. The town is very populous, containing 8,000 houses, most of which are built of bamboos and rough timber raised on piles, to escape inundation. The city contains many fine buildings, among which are numerous mosques and other public edifices, and the

strongly-fortified palace of the king. Viewed from a short distance, the city, embowered in luxuriant foliage, has a very picturesque appearance. The country beyond is highly cultivated, and dotted with pleasant villages, each with its snow-white mosque.

ACHELOUS, a river of Acarnania, which, rising in Mount Pindus, and dividing Ætolia from Acarnania, falls into the Ionian Sea. Homer calls it "king of rivers." It is the largest stream in Greece, its length being 180 miles. It is now called Aspro Potamo.

ACHEN, JAN VAN, also called Janachen, Fanchen, Dac Acken, artist, born at Cologne in 1552 or 1556, died at Prague in 1615. Notwithstanding a defective education, he displayed an uncommon talent in early youth. At 22 years of age he went to Italy, and studied some time under the Dutch artist, C. Rema, at Venice. Thence he proceeded to Rome, where he painted the Birth of Christ for the Jesuit church. He afterward entered the service of the Bavarian court. The emperor, Rudolph II, invited him to Prague, where he remained until his death.

ACHENBACH, ANDREAS, a German artist, born in 1816, the most conspicuous landscape and marine painter of the present Düsseldorf school. His "Waterfall of Hardangerfyord in Norway" is his most elaborate picture. Several of his works have been brought to the United States.

ACHENWALL, GOTTFRIED, the originator of statistical tables, born at Ebling, in Prussia, Oct. 20, 1719, died May 1, 1772. He studied in the universities of Jena, Halle, and Leipsic, and lectured in 1746 at Marburg. In 1748 he went to Göttingen, where, in 1753, he was appointed professor of philosophy, and in 1761, professor of jurisprudence. Aided by the king, he travelled, in 1751 and 1759, through Switzerland, France, Holland, and England. Most of his historical and political works have passed through several editions.—His wife, SOPHIA ELONORA WALTHER, was an accomplished woman, and the authoress of a volume of poems which appeared in the year 1750.

ACHERLEY, ROGER, an English jurist of the 18th century, author of a work called "The British Constitution," London, 1727, and "Free Parliaments," London, 1781. He derives the Britons from one Britannus, contemporary of Noah.

ACHERON, a small stream of Elis, that flows into the Alpheus. It was one of the rivers in the realms below, over which the dead had to pass.

ACHERUSIA. I. A lake between Cumæ and the promontory Misenum. II. A lake of Epizur. III. A small lake in Argolis. IV. A cave through which Hercules is fabled to have descended to hell.

ACHERY, DOM JEAN LUC D', a French Benedictine savant, born at St. Quentin, 1609, died at Paris, April 29, 1685. His favorite study was ecclesiastical history, in which he was a voluminous writer.

ACHILL, an island in the county of Mayo, Ireland, of wild, mountainous, and boggy surface. Area, 51,528 acres, of which, in 1848, only 554 were under cultivation. Pop. in 1841, 6,892, in 1851 only 4,950. The people are very poor and ignorant, but a missionary colony of the established church has been founded there with a view of bettering their condition.

ACHILLES, properly Achilleus, the hero of the Iliad; he was the son of Peleus, king of the Myrmidons in Phthiotis in Thessaly, grandson of Æacus, and thus third in descent from Zeus. His mother was the sea goddess, Thetis, daughter of Nereus; hence he is often called Pelides, Peleïades, and Æacides. The story of his early life is told in different ways by post-Homeric writers. The generally received account is, that his mother, foreseeing his early death, endeavored to countervail the decrees of destiny by dipping him in the river Styx, whose waters had the property of rendering the human frame invulnerable. The heel by which she held the babe was not wetted, and remained the sole vulnerable point of the hero. "The heel of Achilles" has passed into a proverb, to signify the weak point of a man or a system. He was educated by Phoenix, who taught him the arts of war and eloquence, and by Chiron the centaur, who taught him the healing art. In order to keep the young hero out of danger, Thetis disguised him as a maiden, and sent him to the court of Lycomedes, the king of the island of Scyros. Here his real character was soon discovered by the birth of a son to him, named Neoptolemus or Pyrrhus, by Deidamia, the daughter of Lycomedes. The prophecy was that Troy would never be taken in the absence of Achilles. The crafty Ulysses was sent to discover him; disguised as a peddler, he offered the Scyrian maidens female trinkets and weapons of war; all of them chose ornaments suitable to their condition, but the disguised hero clutched the sword and shield. He went to Troy, accompanied by his tutor Phoenix, his dear friend Patroclus, and at the head of his Myrmidons in fifty ships of war. Previous to his dispute with Agamemnon, he ravaged the country round Troy, and took and destroyed twelve towns on the coast, and eleven in the interior. Briseïs was his favorite female slave and companion, whom he had captured at the sack of Lyrnessus. The commander-in-chief, Agamemnon, claimed her as indemnity for his slave Chryseïs. The Iliad opens at this point. Achilles obeys on the entreaty of Pallas Athena, but retires to his tent in hottest wrath and resentment against Agamemnon, and refuses to take further part in the campaign. The Greeks suffer a myriad of woes in the absence of their strongest and swiftest warrior, but no extreme of calamity will change his decision. At last, his bosom friend Patroclus gains his permission to put on the armor of Achilles, and show himself to the victorious Trojans. He does so; the Trojans believing that Achilles has come into the arena, flee in panic. Patroclus

presses on, and is slain by Hector. Then Achilles, in the desire to avenge his slain friend, reconciles himself with Agamemnon, receives Briseis again, gets a new suit of armor from Vulcan, including the far-famed shield of Achilles, which is brought to him by his mother, Thetis, and rushes into the fight. He slaughters a great number of Trojans, contends with the river god Xanthus, whose course he has heaped with corpses and defiled with blood, and drives all the Trojans within the walls of their city. Hector alone dares to withstand his course. He is slain, and Achilles drags his body three times round the walls of Troy. On his return to the camp, he institutes games in honor of his friend, and slays ten captive Trojan youths of gentle birth on the funeral pyre, to satisfy his vengeance, and the manes of Patroclus. The old Priam, led by Mercury, penetrates to the tent of the resentful hero, and at last prevails upon him to allow the body of Hector to be ransomed. We hear no more of Achilles in the Iliad. The accounts of his death are various. The most popular is that which represents him as falling by the arrow of Paris, directed by Phœbus Apollo at the vulnerable heel, when he was in the temple of that god, about to espouse at the altar Polyxena, the daughter of Priam. His remains were collected in a golden urn with those of his friend, and a cenotaph was erected to him on the promontory of Sigæum; this monument was always an object of veneration to the Greeks; Alexander the Great performed a pilgrimage to it, and ran naked three times round it. His weapons were contended for by Ajax and Ulysses, and awarded to the latter.

ACHILLES TATIUS. I. A Greek astronomer, who flourished probably in the first half of the 4th century of our era, and wrote a treatise on the sphere. II. A native of Alexandria, who wrote a Greek romance, entitled "The History of Leucippe and Clitophon." He probably wrote near the close of the 5th century. These two persons have been confounded with each other by most biographers.

ACHILLI, GIOVANNI GIACINTO, an Italian Protestant, born in Viterbo, 1808, of an old Roman family. He was formerly a priest of the Roman Catholic church, and belonged to the Dominican order. In his youth he was for many years *Philosophia et Sacra Scriptura* lecturer, both in the episcopal college and in the convent of Gradi; and in his 26th year was appointed chief professor of theology in the Minerva college. In 1838 he became visitor of the Dominican convents in the states of the church and Tuscany. In the pontificate of Leo XII. he was appointed vicar to the Master of the Sacred Palace (then Cardinal Velzi), and confirmed in the same under Pope Gregory XVI. About this time objections to the practices and doctrines of the church of Rome first dawned upon his mind; and his anxiety in consequence of them determined him to withdraw from Rome, and spend some time in retirement.

As he was accustomed to preach on controversial subjects, especially at Lent, in different places, his preaching began to be modified according to the new direction of his mind; and his last sermons, in the cathedral of Capua and the churches of St. Dominic the Great, St. James the Royal, and others in the city of Naples, were reported as heretical to the inquisition of Rome. In 1839 he commenced his secession from the church, by seeking a dispensation to quit the Dominican order, which he obtained. He remained for some time afterwards at Naples, teaching science and literature, and occasionally preaching. In 1841, having occasion to visit Rome, he was seized by the inquisition, and kept in a dungeon for several months. On his release in 1842 by order of Pope Gregory XVI., who tried his utmost to reconcile and recall him, even by the offer of high preferments, he fled from Rome and Italy, in the month of October, and repaired to the Ionian Islands, where he published "Letters to the Pope." In Corfu he opened religious meetings. The two famous brothers Bandiera, were his associates, among many others. In 1845, he was appointed professor of divinity in the Protestant college of Malta, where he had already gathered several Italian priests, seceders from the church of Rome. In 1848, he visited England, and as, near the end of that year, the Pope, Pius IX., had fled from Rome, about the beginning of 1849 he went to that capital. Although a friend of the republican leaders, and sympathizing with them, he devoted himself exclusively to religious labors. During the period of the Roman republic, he published several tracts on religious topics. About the end of that republic, when many people were trembling at the restoration of the ecclesiastical power, he was married, according to the civil laws, to a young lady, a native of Rome, but of English descent. The marriage ceremony was performed in 1849, in the place of worship of the Italian church in Rome, in the presence of many priests, who attended for the purpose, and to whom he preached a sermon on the "divine law and sanctity of marriage." But a few days afterward, July 29, he was again seized by the inquisition, and sent to the castle of St. Angelo. In the mean time his numerous friends, especially those of England, were busily engaged in procuring either his release from the pope, or his escape from prison; and succeeded in the latter though not in the former. In the disguise of a military uniform, through the aid of some French authorities, who brought him out of his cell, under the pretence of requiring his evidence on a trial, he was able to conceal his features, and make good his escape, on the evening of Jan. 19, 1850, from Rome to Civita Vecchia, and thence in a French steamship of war, to Toulon, Paris, and England. The great excitement existing at that time in the British Islands, beginning with London, against the papacy and the inquisition of Rome, called forth, among others, Cardinal Wiseman, who wrote and published an anonymous pamphlet against

Achilli, making various charges against his moral character, to which he (Dr. A.) answered in a book entitled "Dealings with the Inquisition;" but after an address, made by Dr. A., to a public meeting in the city of Birmingham, upon "the abuses of Rome," the Rev. Dr. Newman brought forward the charges of Cardinal Wiseman, uttering them from his pulpit, and giving them the widest publicity by the press. This caused a lawsuit against Newman for libel, which was tried before Lord Campbell at the Queen's Bench in London. The case, from its peculiar character, excited great attention in religious circles, and strenuous efforts were made on both sides to sustain their position before the court. A great mass of testimony was presented; the witnesses were submitted to a searching examination; the counsel of each party exhibited equal ability and zeal; and after a protracted hearing of full 4 days, the jury gave a unanimous verdict against Dr. Newman on every charge. The court, after representations from the friends of Dr. Newman, setting forth the impaired condition of his health, and that he had been governed by no private animosity in making his charges against Achilli, sentenced Dr. Newman to imprisonment and a fine.—In July, 1858, Dr. Achilli came with his family to New York, not only to pay a visit to this country, but to complete the new translation of the Italian Scriptures from the original Hebrew and Greek, which he had begun on his first departure from Italy. The following year he caused the first edition of the New Testament to be published in New York, for the Italians in the United States; a committee was subsequently appointed in Italy for the publication and distribution there. He now resides in Brooklyn, N. Y.

ACHILLINI, ALESSANDRO, Italian physician, born at Bologna, Oct. 1468, died Aug. 1512. He taught philosophy and anatomy in Padua and Bologna, and was a firm adherent of the Aristotelian philosophy. He was one of the first to profit by Frederic II.'s edict, permitting the dissection of the human body. He wrote several works, principally on medical subjects. The edition of 1568, 1 vol., contains the whole, with notes by Pamphilus Montius.—CLAUDE, born 1574, died 1640, was nephew of the preceding, and had a general knowledge of science, especially of jurisprudence, which he taught publicly at Parma, Ferrara, and Bologna. He was also a poet, and received a gold chain from Cardinal Richelieu for some bad verses on the successes of Louis XIII. in Italy.

ACHMET I., sultan of Turkey, born in 1589, died Nov. 1617. He succeeded his father Mohammed III. in 1603, when only 13 years of age. In his reign the long contests between the Porte and Austria and between the Porte and Persia were closed. Achmet first consented to negotiate with the Christians on terms of equality, and abandoned the Austrian tribute, in consideration of a present subsidy.

ACHMET III., sultan of Turkey, ascended

the throne in 1703, died 1736. He was elected by the janizaries after the deposition of his brother Mustapha, in 1703, and although of peaceful disposition was constantly engaged in war. Charles XII. of Sweden took refuge in his dominions, which involved him in hostilities with Peter the Great. He recovered the Morea from the Venetians, but in his wars with Austria, during which Prince Eugene gained his great battles of Peterwardein and Belgrade, he was forced to a peace, which cost him Belgrade, part of Servia, Wallachia, and Temeswar. In his reign the first printing press was established in Constantinople, in the year 1727. A revolt of the janizaries again changed the government and made way for his nephew Mohammed I. in 1780, an event which, contrary to oriental usage, he survived six years.

ACHMET GENDUC or ACOMAT, Turkish general, born in Albania, 1480. He took Otranto in 1480, with other places. After the death of Mohammed II. in 1482, he declared for Bajazet, and raised him to the throne. Zezam, the legitimate heir, was obliged to fly to Rhodes. Achmet was afterwards assassinated by Bajazet.

ACHMET PASHA, Turkish general under Solyman the Magnificent. He was the principal leader in the desperate siege of Rhodes, 1522, when the Knights Hospitallers were compelled to evacuate it. He was afterwards sent to Egypt to suppress a rebellion, and to take the government of the kingdom. Having succeeded in his mission he assumed the insignia of royalty. Solyman immediately despatched an army against him, when Achmet's party returned to their allegiance. Achmet was stifled in a bath, and his head sent to Solyman.

ACHMET RESMI EFFENDI, a Turkish statesman, died 1788. In 1757 he was sent to Vienna, and in 1768 was ambassador to Berlin. He wrote the narrative of these two embassies in Turkish, which was translated by Von Hammer, Berlin, 1809. He also wrote a history of the war of 1768-1774, between the Turks and Russians, which was translated into German—Halle, 1818. He was plenipotentiary at the peace of Kanardji, and was subsequently disgraced and died blind.

ACHMIM, a town in Middle Egypt, lat. 26° 38' N. on the right bank of the Nile. The population is 8,000. This town is the Chemmis of Herodotus. A coarse cotton cloth is manufactured here. The ruins of two temples are to be seen at Achmim. The hills in the neighborhood are full of excavations, made originally to receive the mummies, and afterwards serving as a refuge for the Christians during the persecutions of Diocletian.

ACHROMATIC LENSES are magnifying glasses composed of three pieces, designed to prevent objects seen through them from appearing colored as they do when viewed through a single lens. The discoloration arises from the fact that a lens will not have the same focal length for red rays as for blue, &c. By combining three lenses of different kinds of glass, this ef-

fect may be to a great extent avoided, and stars and animalcules seen in nearly their true colors.

ACHTERFELD, JOH. HENR., Catholic theologian, born 1788 at Wesel. He studied at Cologne and Munster. In 1826 he became professor of theology at Bonn, and was suspended in 1843 for adhering to the opinions of Hermes. He afterwards engaged with Braun in the publication of a journal of philosophy and theology, entitled, *Zeitschrift für Philosophie und Katholische Theologie*.

ACID. As commonly used, this term is equivalent to the Latin word *acidus*, meaning any thing sour. In chemistry it is restricted to a class of compound substances, that possess certain properties, as changing blue vegetable colors to red, and combining with alkaline and other bases to form stable compounds, neither acid nor alkaline. We are already acquainted with several hundred of these compounds, the great majority of which belong to organic matters. The juices of plants and the constituents of animal bodies furnish their peculiar acids; and with the changes these undergo new acids are generated by different modes of combination of their elements, and yet these processes cannot be imitated by art, so as to reproduce an organic acid. The mineral kingdom furnishes another class of acids. There are seventy or more of them called oxygen acids, from oxygen being one of their constituents, and eight called hydrogen acids, in which hydrogen is found, and oxygen is not a constituent. Some acids are very complex in their composition, consisting of a number of elements, some of which exist in different combinations in the same compound; and some acids are simple compounds of two elements. Some acids, when uncombined, are gaseous; others fluid only; and others, solid. Some are fixed in their combinations, and exist as acids, only when united with some other substance, as with water or a base; and others, as anhydrous sulphuric acid, form a fluid with no foreign admixture. Their properties, also, are as various as the conditions in which they exist.

ACILIUS GLABRIO, I. MANIUS, Roman general, and consul, B. C. 191. He was of plebeian origin, but passed successively through the offices of state, and supported Cornelius Scipio. He was afterwards sent against Antiochus, king of Syria, one of the most formidable enemies of Rome. He conducted himself with such skill and energy that in a short time Antiochus was beaten. Acilius carried on the war against the Ætolians and Phœceans, and was occupied with the siege of Amphicæa, when he was superseded by Cornelius Scipio. On his return he had a triumph. But his elevation and success as a plebeian gave great offence to the patricians of Rome, who stirred up annoyances and accused him of keeping back the public spoils. He succeeded, however, in escaping condemnation. He was the first to whom a statue of gold was erected in Italy. He wrote the annals of Rome in Greek, full of fables. II. Consul in the reign of Domitian,

together with Trajan. He was a man of remarkable strength, and fought a lion in the circus, which he killed without receiving a wound. He was put to death by Domitian, on a charge of conspiracy, while his former colleague attained to the imperial purple.

ACI REALE, a seaport of Sicily, celebrated for its mineral waters. It is well built, principally of lava, and situated on an eminence seven miles north-east of Catania, at the mouth of the Aci. Pop. 19,800. Near it are the famous cave of Polyphemus, and the grotto of Galatea.

ACKERMANN, KONRAD ERNST, comedian, born at Schwerin, 1710, died 1771. He is best known in Germany for his efforts to organize theatrical affairs on a better footing. In company with Lessing he managed the Hamburg theatre in 1767.—**SOPHIE CHARLOTTE**, maiden name Biereichel, the wife of the preceding, born 1714, died Oct. 1792. When her husband had undertaken the direction of the Hamburg theatre (1767), she became the favorite of the public for the fine tact and artificial grace with which she played her parts. In the latter years of her life she spent her time in teaching young actresses their profession.

ACKERMANN, JOHANN CHRISTIAN GOTTLIEB, German physician, born 1756, died 1801. He was early left an orphan, and studying at Jena, excited the attention of Professor Baldinger, who took charge of his studies. In 1778 he practised in his native town, Zeulenrode, and in 1786 was appointed to the chair of chemistry at Altdorf in Franconia. He wrote a number of professional biographies, Hippocrates, Theophrastus, Galen, &c., and several medical works, *Manual of Military Medicine*, *Treatise on the Maladies of Studious Men*, and others.

ACKERMANN, RUDOLPH, print-seller, born April 20, 1764, at Schneeberg, Saxony, died March 30, 1834. He commenced life as a saddler, and after residing for some time in Paris and Brussels, repaired to London. On his first arrival in that city, he sold colored patterns for coachmakers. His success in this trade having inspired him with an idea of doing better, he took a place in the Strand, which afterwards became the famous repository of arts, and his taste and enterprise soon made his warehouse a place of great attraction. He early established a lithographic workshop in London, an art to which he had devoted much personal attention. He can scarcely be termed a patron of art, yet his establishment presented facilities to the unknown artist whose meritorious exertions found a ready purchaser in Mr. Ackermann. He issued numerous engraved annuals, "The Forget-me-not," &c., and illustrated serials, "Microcosm of London," "Histories of Westminster Abbey," "Oxford and Cambridge," &c.

ACKLAND, JOHN D., a British major commanding the grenadiers in the battle of the American revolution near Stillwater, Oct. 7, 1777. When overpowered by numbers, the British retreated to their camp, which was

stormed furiously by Arnold. Major Ackland was shot through the legs and taken prisoner. When General Fraser was brought mortally wounded to the quarters of the Baroness de Riedesel, a report reached the Lady Harriet Ackland in a tent near by, that her husband, too, was mortally wounded. To the surprise and admiration of Burgoyne this heroic wife determined to seek her husband in the American camp, although she was at the time much debilitated by want of food and rest, and by anguish of mind; nor could she foresee into what hands she might first fall. She was received with a kindness corresponding to her heroic conduct. Her attentions restored her husband to health, and the bearing of the Americans towards both made a profound impression on the mind of Major Ackland, who was provoked to give the lie direct to Lieut. Lloyd for some foul aspersions on the American name. Major Ackland was shot through the head by Lloyd in a duel, a circumstance which caused his devoted wife the loss of her senses for two years. She afterwards married the Rev. Mr. Brudenell, a chaplain in the British army, who accompanied her in her perilous pursuit of her husband.

ACLOQUE, ANDRÉ ARNOULT, a brewer of the Faubourg St. Antoine, at Paris, in 1789. He was appointed representative of his commune, and afterwards president of his section, and *chef de bataillon* of the national guard. On June 20, when the populace broke into the Tuileries, he was on duty at the palace, and remained constantly near the person of the king to protect him. A bonnet rouge was offered the king, which, to conciliate the people, he placed on his head, and leaned on Acloque's shoulder while he addressed the people. Acloque soon retired from the capital alarmed at the turn political affairs were taking.—Dr SAINT ANDRÉ, son of the preceding, was a dealer in vinegar and mustard, at Paris. In 1814 he was colonel of the eleventh legion of the national guard. When Napoleon left Paris Acloque was one of those who signed the address at his departure, which promised to defend the city against the allied powers, and to stand by Napoleon to the last. Two months afterwards, in company with others of the same tinge of political morality, he acknowledged Louis XVIII. and hailed his return to the throne of his ancestors with unbounded joy. In acknowledgment of his great services he was permitted to style himself Chevalier de Saint André, from the street in which he lived.

ACOMETÆ (Gr. *ακομῆτος*, sleepless), an order of Greek monks who chanted the divine service day and night, without ceasing. This they accomplished by dividing themselves into three bodies, succeeding one another alternately. Their centre was the cloister of Irenarion, near Constantinople. They flourished in the fifth century after Christ; in the succeeding century they were put under the ban of the Church, on account of their leanings towards the Nestorian Christians and their doctrines.

ACOLYTE, a clergyman in the Roman Catholic church, and in the churches of the East, next in rank to the sub-deacon, whose principal office is to light the candles on the altar, and attend on the priest or other sacred ministers during mass and vespers. The youths who serve at the altar are also called acolytes, though not ordained.

ACONCAGUA, a province in Chili, 120 miles long by 100 wide, extending S. from the river Chuapa, between lat. $31^{\circ} 30'$ and $38^{\circ} 20'$ S. long. 70° and 72° W., population about 93,000. The peak of Aconcagua, which has been regarded as the highest volcano in the world, said to be 28,900 feet above the level of the sea, is in the Andean range of mountains, which divide this province from the Argentine province of Mendoza. Recent researches, however, have thrown doubt on the volcanic character of this mountain. The crops raised are wheat, maize, &c. Sugar-cane is grown in the valley of La Ligua. Copper ores are plentiful all over the province, and gold abounds in districts north of Aconcagua. There being only from 14 to 20 days' rain in a year, cultivation can only be carried on by irrigation.

ACONITA, a vegetable principle or alkaloid of poisonous quality extracted from the aconite; the efficient principle of the medicinal preparations. It is obtained in white granules.

ACONITE, a genus of plants so named from Acone, in Bithynia, which is famous for its poisonous herbs. It belongs to the natural order *ranunculacea*; many of its species have long been known for their poisonous properties. Several are cultivated in our gardens, and are known by the familiar names of wolfsbane, monkshood, &c. The latter term designates the distinguishing mark of the genus, which is the uppermost segment of the calyx overhanging the petals and other parts in the form of a helmet. The roots and leaves of the *aconitum napellus* are used for the preparation of some powerful medicines, which act as drastic purgatives, and which are also externally applied as an anodyne remedy in acute pains affecting the nerves, and in rheumatic and syphilitic complaints. The homœopathic physicians make a great use of aconite in fevers. The juice of the leaves taken internally soon proves fatal. Even the perfume affects some persons with faintness and dimness of vision. The poison acts upon the brain and nervous system, producing frenzy. So virulent is it that one-fiftieth of a grain of aconite taken internally has endangered the life of an adult. In preparing the extract, the operators are sometimes powerfully affected by the vapors; hence great care is required in this process. The most effectual antidote in cases of poisoning by these plants is the stomach pump, or warm water administered till it produces vomiting; stimulant remedies should then be applied internally and externally. Linnæus saw aconite rendered innocuous by merely boiling it and adding a little fat or butter. The alcoholic extract is the only valuable preparation

of this substance, excepting that made by sulphuric ether. The processes are expensive, owing to the danger attending them, and the great quantity of the plants required to produce a small quantity of the extract. The pure article is consequently held at prices almost fabulous. Probably the *aconitum ferox*, from which the *bish* root of Nepal in India is obtained, possesses the most deadly qualities. This was used by the natives to poison their wells on the advance of the British army into their territories during the last war.

ACONITE, WINTER (*eranthis hyemalis*), is a plant of another genus. It is a small tuberous and herbaceous plant, growing without stem, and bearing in early spring bright yellow flowers of cup form. Its leaves are smooth, pale green, many cut and peltate; and its scape only a few inches high, is single flowered. Horse-radish has somewhat the appearance of monkshood, and fatal cases of poisoning have occurred from the root of the latter being taken by mistake for the former. In one of these cases, which occurred at Bristol, England, it appears that not more than one-twentieth of a grain of aconite could have been contained in the roots eaten. The aconite roots have little or no resemblance to those of the horse-radish; the scrapings differ from them in assuming a pinkish brown color on exposure to the air.

ACONZIO, GIACOMO, Italian philosopher, born at Trent in 1492, died in London, May, 1566. He became a Protestant, and went to England, where Queen Elizabeth took him into favor, and permitted him to dedicate to her a work on the devices of Satan in religion, namely, superstitious error, heresy, hatred, calumny, schism, &c. The work was translated and met with disapprobation from Protestants themselves. Calvinists objected to its tolerance, and Selden remarked *ubi bene nil melius, ubi male nihil pejus*, "When good nothing can be better, when bad nothing worse."

ACOSTA. I. ANDREA, theologian, born in Piacenza. He was appointed Italian preacher in Zurich, and in 1668 went to Lucerne as secretary of legation, and embraced the Catholic faith. In 1665 he returned to Zurich, and relapsed into Calvinism; on this being discovered he was seized, sent to the galleys, and compelled to renounce the doctrines enunciated in his Calvinistic writings. **II. CHRISTOPHER**, Portuguese physician of the 16th century, born at Mozambique. He took a voyage to India in search of drugs, and was made prisoner and obliged to ransom himself. He returned to Europe, and settled at Burgos, where he practised medicine. He wrote an interesting treatise on the drugs and medicaments of the East Indies, 1578, 4to. This work was translated into Italian, Latin, and French. He also wrote a book of travels. **III. JOAQUIN**, an officer in the service of the republic of Colombia. He travelled extensively in Colombia and New Granada, and has done much for the geography and historiography of his country. He com-

plied an excellent map of New Granada, with a history of the discovery and colonization of that country, Paris, 8vo, 1848. He also discovered the work of Caldas, frequently cited by Humboldt, which had been lost, which he published with valuable notes, and a preface. Acosta was lately residing at Bogota. **IV. JOSE DE**, Spanish writer, born 1539, died 1600. He entered the society of Jesuits at 14, and so distinguished himself that he became professor of theology, at Orafia. In 1571 he was sent as a missionary to South America, of which he wrote a history in 1590. The work has been frequently translated into other European languages. After his return to Spain, Acosta was in great favor with Philip II., and was promoted to several ecclesiastical dignities, and among them was made rector of Salamanca. He wrote some other works, chiefly of a polemical character. There were five brothers Acosta in the society of Jesuits. **V. URIEL**, a Portuguese Jew, died April, 1647. His parents, who had been compelled to embrace Christianity, baptized him by the name of Gabriel. He studied jurisprudence, but in perusing the sacred writings he became convinced that Catholicism was not the true faith, and that Judaism was preferable. He communicated his discovery to his brothers, and fled secretly to Amsterdam. There he embraced the dogmas of the Sadducees, who say that there is no resurrection. If by this step he gained peace of conscience, he did not acquire temporal ease. By a publication of his views he gave great scandal and offence to a relative, who stood high among the orthodox, and he was immediately summoned before the council, by which he was condemned and punished. He offended again, and was again punished. At length, after many acts of heresy, and much persecution by the Rabbinical party, he was sentenced to be scourged, and to lie down at the door of the synagogue while the congregation walked over him. Stung to the quick by this treatment, he endeavored to avenge himself, but failing in his attempt committed suicide.

ACOUSTICS is that branch of mechanics which treats of the nature of sound, combined with that branch of physiology which treats of the function of hearing. No material substance can be moved in all its parts simultaneously, nor transmit force from one part to another without a lapse of time proportioned to the elasticity and compressibility of the body. If we had a continuous solid iron rail from New York to Albany, it would be impossible by any amount of force applied at New York, pushing or pulling, to move the end at Albany in less than one minute and a quarter, the time required for mechanical force to travel in iron that distance. If, in like manner, we had a speaking pipe between those cities, open at each end, the most powerful forcing pump could not make air issue from one end in less than twelve minutes by blowing into the other end, that time being requisite to transmit me-

chanical force through the air that distance. That is to say force will travel in air at about 1,100 feet a second (1,096 feet at freezing point, adding .96 of a foot for every degree above freezing). Whenever a greater velocity than this is given to any particles of air, they must compress the particles of air in front of them. This compressed portion of air by its elasticity springs out into its original bulk, and compresses the surrounding portion, which in its turn springs out, and thus the force travels through the air producing what is called a wave of sound. The ear is designed to take cognizance of these pulses of force, waves, or tremors, within certain limits. The nature of things prevents a single wave of sound from ever coming alone. The more nearly alone a wave comes, the more sharp and sudden the sound. When several nearly equal waves come at irregular intervals, the sound is called noise. When the waves are equal and at equal distances, the sound is called a musical tone. The middle C between the bass and treble clef is produced by waves about 8 feet 10 inches apart; waves at half that distance apart produce a tone one octave higher, &c. If the distance apart of the waves of one note bears a simple ratio ($\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{5}{6}$, $\frac{2}{5}$, $\frac{3}{8}$, or $\frac{4}{9}$) to the distance apart of the waves of another note, the two notes harmonize; otherwise they are discordant. Sound is reflected like light; reflected sound is called echo. Sound will set sonorous bodies in vibration, as light will cause white or colored bodies to be visible. This reverberation is especially noticeable on speaking near a piano-forte or harp. It is by echoes and reverberations that the blind are guided; not having quicker hearing than others, but a more cultivated judgment of sounds. Sound is somewhat polarized (like light), and is transmitted most powerfully in the direction of the plane in which the particles of air move; a cannon is heard furthest in the direction of its length. Sound may be propagated not only through air, but through all elastic substances. It travels in many solid bodies with greater velocity than in air. When confined in a smooth tube of air it travels great distances before becoming inaudible. All sounds travel in air with nearly the same velocity, but the experiments of Mr. Boyden in the Cochituate water-pipes prove that loud sounds travel slightly faster; arising, perhaps, from the greater heat developed in the compression of the air by the wave of sound. Acoustics engaged the attention of Aristotle and Pythagoras, but were first developed to any considerable extent after the revival of learning in the 17th century. Euler, Newton, Bernoulli, Lagrange, Laplace, Poisson, Young, Biot, Ohlradni, and Savart, are among the writers upon this science, but no treatise contains so much information in so brief a space as the book on Sound prepared by Prof. Peirce, of Harvard University, from the article in the *Encyclopædia Metropolitana* by Sir John Herschel.

ACQUAPENDENTE, a town in the Roman

States, in the province of Viterbo, on the road from Florence to Rome. In 1650, Pope Innocent X. destroyed the town of Castro, near by, to avenge the murder of a bishop, when this place rapidly grew into importance. It is a meanly-built town, containing a population of 2,400. The celebrated anatomist Fabricius was born here in 1557.

ACQUAVIVA, ANDREA MATTEO, duke of Atri and Teramo, born 1466, died 1520. He belonged to one of the first families of Naples. When Charles VIII. went to Italy, Acquaviva took his side against the Spaniards. Gonsalvo de Cordova, the great captain, took him prisoner, and sent him to Spain, where he alleviated his captivity by publishing a treatise on the moral writings of Plutarch. When he recovered his freedom he devoted himself to the encouragement of literature and the arts; he had a private printing press, and printed the poems of Sannazarius and others.

ACQUI, a province of Piedmont, situated on the northern side of the Ligurian Apennines, bounded N. by Alessandria, E. by Novi, S. by Savona, and W. by Alba. It is 40 miles long, by 25 wide, and contained in 1848 a population of 101,202. A little corn and much fruit are produced, and the vineyards on the lower hills supply good Monferrato wine. The chestnut trees which abound furnish the peasantry with an article of common food. Rearing silkworms is extensively carried on, and horned cattle are raised to some extent. The chief town, also called Acqui, is a place of considerable importance, having a bishopric and 8,000 inhabitants. It is much frequented by invalids for its famous hot sulphur springs, which were known to the Romans. There are many handsome buildings in it; among them a fine cathedral, convents, a royal college, and a theological seminary.

ACRE, a measure of superficies, is formed by raising a square, of which the basis is the chain of 66 feet, and ten of these squares form the acre, which thus contains 4,840 square yards.

ACRE, St. JEAN D', ACCO, PROLEMAIS, or Acco, a harbor of Syria, at the foot of Mt. Carmel, lat. 32° 54' N. long. 85° 4' E., population about 15,000. It is the best bay on that part of the coast, although very shallow. The place is renowned for its desperate sieges and defences. In 1104 it was taken by the Genoese, from whom Saladin retook it in 1187. The assault upon it by Richard Cœur de Lion in 1191 was one of the most daring feats in the Crusades. It remained until 1292 in the custody of the Knights of St. John, who fortified it strongly, but were compelled to evacuate it by the Turks. It was here that the Turks, supported by the chivalric Sidney Smith and a handful of British sailors, kept Napoleon and the French army at bay for sixty days, when he raised the siege and retreated. In 1832 Ibrahim Pasha, after a six months' siege, took it by storm when Mehemet Ali revolted from the Porte, and seized upon Syria. In 1839, how-

ever, Syria was restored to Turkey, and Acre again felt the bitterness of war, Ibrahim refusing to evacuate until after a bombardment by the combined British, Austrian, and Turkish fleets, Nov. 4, 1840.

ACREL, OLOF, Swedish surgeon, born near Stockholm, in 1717, died there in 1807. After studies and travels in the most cultivated countries of Europe, he rose to the first professional position in his native land, and was an associate of several European learned societies. He left various surgical monographs, which are distinguished for their research and sagacity.

ACRELIUS, ISRAEL, a Swedish clergyman, born at Osteråker, a hamlet in the province of Roslag, Dec. 25, 1714, died at Fellingsbro, in the province of Westmanland, April 25, 1800. He studied in Upsal, where he graduated and was ordained in 1748. In 1749 he was appointed provost of the Swedish congregations on the Delaware, and pastor of Racoon and Pensneck. During the same year intelligence of the vacancy at Christina reached Sweden, and he was transferred to the church at that place. He left Stockholm July 20, 1749, and reached Philadelphia Nov. 6. He managed the ecclesiastical affairs of the Swedish colonists, which he found in great disorder, with zeal and prudence, and was greatly respected by the congregations under his charge. Ill health, however, compelled him to resign his situation, and, leaving Philadelphia in Nov. 1756, he arrived at Stockholm in July, 1757. The king of Sweden bestowed upon him a large pension, and the lucrative living of Fellingsbro. Beside some articles on American affairs in the Swedish journals of the last century, and numerous works of a religious character, Acrelius published a description of the Swedish colonies in America, under the title of *Beskrifning om de Sconaka Församlingars firra och närvarande Tillstånd uti de så kallade Nya Sverige*, 4to, Stockholm, 1759. It comprises both the civil and ecclesiastical history of the colony from its earliest period, and much important topographical information concerning the region on both sides of the Delaware. Its style is lively and pleasant.

ACRIDOPHAGI (Gr. *akris*, locust, and *phagein*, to eat), an ancient Ethiopian tribe, represented as dwelling near the deserts, and feeding on locusts, whence the name.

ACROBATES (Gr. *akros*, high, and *baivō*, to go), were rope-dancers, who performed various feats by vaulting, tumbling, and dancing on a rope, and sliding down a rope from aloft with arms and legs outstretched, in imitation of flying. In modern gymnastics, such performers are called dancers on the tight or the slack rope, as the case may be.—**ACROBATIUM** or **ACROBATICA**, an ancient engine, of which the uses are only conjecturally known to us. Some suppose it to have been a military engine or tower used by the besiegers against a city, by ascending which the attacking party could see what was going on inside the walls. Others suppose that it was

a machine used by house-builders for the same purpose as a scaffolding.

ACROCERAUNIA, in ancient geography, mountains on the western coast of Greece, so called from their being often struck by lightning. They terminate in Cape Linguetta, lat. 40° 25' N. Modern name, Ohimara.

ACROCORINTHUS, a steep and rocky hill near the city of Corinth, 1,885 feet high. It was famous in ancient times for its citadel, and is now crowned with the ruins of old Venetian fortifications. Its shape is that of a truncated cone, and the view from the top one of the finest in the world. It is described in the journal of Dr. Lieber, before whom no Christian traveller in modern times had visited it, as the Turks would not permit its ascent by Christians while the country was in their possession.

AORON, a Greek physician, born at Agrigentum, a Greek town in Sicily, about 480 B. C. He delivered Athens from the plague which ravaged Greece at the commencement of the Peloponnesian war. This he did by kindling fires in all the streets and public places.

ACROPOLIS (Gr.), highest point of a city, or citadel, usually on a rock or hill. The ruins of the most celebrated, that of Athens, still exist for the delight of travellers. It had five gates, the principal a splendid structure of Pentelican marble, and within its bounds stands the famous Parthenon, or temple of Minerva.

ACROPOLITA, GEORGE, born at Constantinople in the year 1220, died 1282. He wrote a continuation of the Greek history, from the taking of Constantinople by the Latins till its recovery by Michael Palæologus. He was employed in the most important affairs of the empire, especially in the department of finance.

ACROSTIC, a word compounded of two Greek words, and signifying the beginning of a line. It is applied to a poem, the first letters of each line of which, if taken together, form some word or sentence. This conceit is of early date. We have many acrostics from the Greek. The French poets, from the time of Francis I. down to Louis XIV., were fond of this device. In England the acrostic-mania was at its height in the reign of Queen Elizabeth. Sir John Davies wrote 26 hymns to *Astroa*, each of which is an acrostic on the words *Elizabetha Regina*. A century afterwards (1682), we find Dryden, in his *MacFlecknoe*, ridiculing the acrostic. The monarch of the realms of nonsense and dulness addresses his son Shadwell in this wise:

Leave writing plays, and choose for thy command
Some peaceful province in acrostic-land.

ACT, in law, an instrument or decree, act of congress, or act of parliament, the written law, *lex scripta*, upon any given subject, for example, "An act to amend the law relating to custom duties;" "An act to amend and consolidate the law relating to bills of exchange." Acts of the legislature or of congress are also known by the term statutes. Acts are passed at the instance of the government or of individual members of the legislature. When first introduced, the pro-

posed law is styled a bill, and in this state is discussed by the house of representatives, modified and passed, and sent up to the senate, by them discussed, and if modified, sent back to the house of representatives, as altered, for their reconsideration. If passed in both houses, it is sent up to the president, who has the power of veto; he returns the bill, with his objections, to the houses, and if two-thirds of the legislature concur, the bill may be passed, notwithstanding the veto. As the powers of congress are founded materially on those of the British houses of parliament, a sketch of their proceedings will not here be out of place. In the British legislature, acts are either public or private; the former embrace objects of general interest, the latter include all matters relating to private persons, either in a corporate or individual capacity; they are also subdivided into local and personal acts. Acts of parliament may be introduced in either of the houses, but as a matter of parliamentary usage, it is customary to introduce all bills affecting taxation, technically called money bills, in the commons. Bills introduced by members not connected with the government are preceded by a petition for leave to introduce the same; if a private bill, it is referred to the committee on standing orders, to see that the rules of the house are complied with, which in certain cases are very stringent, requiring notices to parties interested, public advertisements, &c. If the report of the committee on standing orders is satisfactory, the bill is read a first time, and referred to a select committee, who take evidence, hear the promoters and opponents of the bill, and either report to the house against the bill, or modify its clauses and report their proceedings; upon this it is customary for the house to accept the report, and read the bill a second time without further alteration; but in rare cases the report is opened in the house, and further modifications take place; the bill then passes the second reading, or is thrown out; if passed, the bill, as altered, is read a third time, which is only *pro forma*, and the bill has then passed the house; the same forms are gone through in the other house, each house having independent jurisdiction. In the case of public bills, the bill is read a first time, printed, and distributed; then referred to a committee, or discussed, clause by clause, by the whole house sitting as a committee, and when altered to suit the views of the opponents, reported to the house for second reading, when the struggle takes place that decides its fate. The third reading is *pro forma*. In the other house the same proceedings take place. The third reading in the two houses having been passed, the bill receives the royal assent. The assent is really a right of veto; in practice, however, it is a mere form, the veto itself being, by modern constitutional usage, obsolete; for the matter having been discussed in parliament, and having been opposed or supported by the government party, is never permitted to come to the issue of a veto. For, if

the ministers be successfully opposed, they either resign or dissolve parliament. In this respect our constitutional practice differs from that of Great Britain, for the president of the U. States, and the governors of particular states, frequently exercise the right of veto. In the case of resignation, new ministers advise the sovereign to assent; in the case of dissolution, the bill drops, and must be commenced *de novo*.—In foreign law, the term Act has an extended signification. The French term, *donner acte* means the emission of a judicial decision, or of an instrument in the nature of a record. *Acte sous seing privé* is a private record, not valid against parties interested without their express consent. *Actes authentiques* are instruments or records issuing from competent parties or authorities, good against all comers until set aside. *Actes exécutoires* include those general laws and decisions which all men are bound to conform to, and also certain specially authenticated instruments, such as notarially attested contracts.—In Germany, the legal term Act is used indifferently to signify either transactions or records. Thus, the various proceedings in a lawsuit are styled acts, *Acten*, and official documents are styled ministerial acts, police acts, &c., *Ministerialakten, Behördenakten*, &c.—Act (university term), an exercise in the nature of an examination. In some universities the practice is obsolete, but in others its form is retained, though the substance is passing away. The student has to maintain some thesis given to him by the examiners against others deputed to refute it. The discussion is carried on in Latin, either written or oral, and is a remnant of the literary jousts of the middle ages, when travelling students, eager for celebrity, visited seats of learning, and posted a challenge to all comers to discuss some question which should give them opportunity of displaying their logical acumen.

ACTA DIURNA, daily doings, the name of a journal or gazette issued in ancient Rome both in the time of the republic and under the empire. It was published by authority, and contained a brief chronicle of the proceedings at public assemblies, in the tribunals both civil and criminal, together with a register of births, deaths, marriages, and some other interesting matter. Divorces being matter of scandal, were a staple item of domestic intelligence in an age when printing was unknown. The circulation must have been very limited, and the transcripts chiefly for the use of the patricians. The free discussion of the comitia, however, would have in some measure answered the purposes which so meagre a record could have afforded. Reporters (*actuarii*) were employed to procure the heads of interesting topics not to be found in official registers.

ACTA ERUDITORUM, the transactions of the learned men. Under this name the first literary journal of Germany was brought out in 1682 by Otto Menke, professor in the university at Leipsic, and several associates. It

remained in the hands of the Menke family until 1754, and preserved its reputation until it fell under the charge of Professor Bel, who managed it so negligently that it lost character and circulation. The calamities of the seven years' war also operated against it, and it languished until 1782, when the last volume appeared, which, however, only brought up the review to 1776. The whole collection is contained in 117 vols. quarto. The *Acta Eruditorum* having met the approbation of the critics of foreign countries, and its convenience being undeniable, a numerous race of imitators both in France, Germany, and England, soon sprung up.

ACTA SANCTORUM, ACTA MARTYRUM, MARTYROLOGY. The chief modern collection of lives of saints and martyrs was collated by a society of learned Jesuits at Antwerp in the 17th century. Bolland undertook the marshalling of the materials which were sought for and collected in all the libraries in Europe. The origin of this collection may probably be dated from the third century. The deaths of pious men, and the circumstances attending their death, were communicated by the various Christian congregations to each other. An alphabetical list of these was occasionally appended in the churches to keep their names fresh in the recollection of the brethren. These lists grew into brief biographies, and at length the institution of canonization and the dedication of particular days to their memory introduced their names and histories into the breviary and missal. The historical accounts of the saints of the first ages of the church are highly valued among Roman Catholics, as a means of pious edification. Several eminent scholars of that church have devoted much labor to their critical revision. A collection of the most important lives was made in the 6th century by Gregory of Tours, in the 12th century by Simeon Metaphrastes, and in 1474 by Boninus Mombrinus, which were followed by the collection of the Jesuits already alluded to.

ACTÆON, in fabulous history, a famous hunter. For the crime of watching Diana while bathing, he was transformed into a stag, and devoured by his own dogs.

ACTIAN GAMES, in Roman antiquity, solemn games instituted by Augustus, in memory of his victory over Mark Antony at Actium, held every fifth year, and celebrated in honor of Apollo, surnamed Actius.

ACTINIA, a genus of marine animals commonly called sea anemones, from their resemblance to flowers. They are fleshy polypes, termed *scanthoria* by De Blainville, and *scophyta helianthoidea* by Dr. Johnson. The body is regular and somewhat like a flower in shape, more or less elongated and very contractile. It has a sac-shaped digestive apparatus, with an oval orifice, surrounded by tubular tentacles of various forms. In many species the base of the body acts as a sucker, by means of which they adhere to rocks, stones, &c., while the op-

posite extremity presents a disc with a central orifice. This is surrounded by tentacles either in a single row or in several rows, and these are capable of being elongated or contracted, and moved in various directions; they act as so many arms by which the animal seizes its prey and drags it into its mouth. They prey voraciously on small crabs and mollusks, and when waiting for their victims, these arms are expanded like the petals of a flower, and being tinted with very brilliant colors, they present an elegant appearance. The actinia seizes animals apparently superior in strength and bulk, engulfs them in its sac or stomach, and distending itself to a great degree, digests them rapidly, disgorge the shells and harder parts of the victim, when the softer parts have been consumed. Some actinia are fixed, and others are free. The external tunio of the body presents both longitudinal and transverse muscular fibres, covered by a layer of skin or mucous membrane. Nervous fibres have also been detected, and the sensibility of the animal is extreme. They contract even when a dark cloud passes over them, and certain species living in the sand of the sea-shore, will disgorge water and bury themselves rapidly on the approach of footsteps. Like other polypi, when cut transversely asunder, each part of the body will become a perfect and distinct individual. They may be seen at low water, clustered upon rocks and masses of stone, which they cover, as with flowers. There they remain tenaciously adhering by their base. They are, however, capable of moving from one spot to another; and in winter they seek deeper water, where the changes of temperature do not affect them. The purple sea anemone is very common on the southern shores of England; and one species (*actinia Jordaica*), on the shores of the Mediterranean, is esteemed a great delicacy by the Italians.

ACTINISM (Gr. *actis*, a ray of light), the peculiar property or force of that portion of the sun's rays which produce the chemical effects, shown in photography, and also the effect of causing the seeds of plants to germinate. That the actinic rays are different from those which produce heat and light, was shown as far back as 1842 by Prof. J. W. Draper of New York, who recognized in them a new principle or force, for which he proposed the name of *tithonacity*, and for the rays that of *tithonic*. The name now adopted was given by Mr. R. Hunt of England. It is found that actinism does not exist in the most luminous rays of light, and that these rays actually tend to prevent the peculiar effects of this force upon inorganic matter. The quantity of actinism in the sun's rays varies with the time of the day, and with the seasons. Its deficiency in the tropics renders it difficult to obtain good pictures there. Its greater abundance in the spring of the year causes this to be the best period for taking pictures, as it is the season for the germination of seeds and

the opening of buds. This principle is obstructed by the passage of rays of light through yellow glass. Hence the unsuitableness of this glass for greenhouses.

ACTINOMETER, an instrument invented by Sir John Herschel, to measure the solar rays. It consists of a thermometer with a large bulb filled with a dark blue fluid. This is enclosed in a box, the sides of which are blackened, and the whole covered with a thick plate of glass.

ACTION, in law, an ordinary proceeding in a court of justice, between two parties, for the protection or enforcement of a right or the prevention or redress of a wrong. A criminal action is instituted by the state for the punishment of a public offender; actions not criminal are civil. Numerous divisions and subdivisions of civil actions which once existed no longer obtain. The tendency is to simplification, and the example of New York in recognizing but one species, seems likely to meet with general favor.

ACTIONS FOR PIANOS are the mechanism attached to keys which act on the hammers, to make them strike the cords, to prevent their rebound, and bring them without jerking to their place when the keys are released. The making of this mechanism is a business by itself. For a long time all the actions used in the United States were imported, but there are at the present day action-makers, mostly Germans, in New York, Boston, Philadelphia, and Baltimore. Actions are either all wood, or wood and brass; they are cheap, and so perfect that there is very little room left for improvement.

ACTIUM (*Actior*, now *La Punta*), a promontory and village in Acarnania, at the entrance of the Ambracian gulf, near which Cæsar Octavius, afterwards the Emperor Augustus, and Mark Antony, had a naval engagement, in which the former was completely victorious, Sept. 2, B. C. 81. This battle decided the question of universal dominion. Octavius had been master of the West, Antony of the East. Both armies were encamped on opposite sides of the Ambracian bay. Octavius had 80,000 men on foot, 12,000 horsemen, and 260 ships of war. Antony had 100,000 foot soldiers, 12,000 horsemen, and 220 ships. Antony's ships were armed with catapults, but were cumbersome. Those of Octavius were small, but had more speed. Cleopatra reinforced Antony with 60 ships, and at her instigation, and against the advice of his own most experienced captains, he offered a naval battle to Octavius. It was accepted. Agrippa, the admiral of Octavius, after the battle had lasted several hours without decisive effect, made a rapid manœuvre, and Cleopatra took flight with her galleys. The voluptuous Antony could not refrain from following her with a few ships. His fleet, on being deserted by its leader, surrendered, and his army did the like after waiting seven days for his return. The miserable man had fled with his

mistress into Egypt. The conqueror, to commemorate his victory, beautified the temple of Apollo which stood at Actium, and erected Nicopolis (city of victory) on the northern side of the gulf.

ACTIVE AND PASSIVE, terms used to denote doing and suffering. A verb is said to be an active or transitive verb, or in the active voice, when it expresses the action of its subject upon another object. It is distinguished from a passive verb or a verb in the passive voice, which expresses the state of suffering or being acted upon by another object. Thus, in the sentence, Corydon kisses Phyllis; the word *kisses* expresses the action of Corydon towards Phyllis, and is an active verb. In the sentence, Corydon was boxed on the ear by Phyllis, the verb *was boxed* expresses the state of suffering to which Corydon was reduced by the action of Phyllis, and is in the passive voice. The neuter or intransitive is different again from both. A neuter verb expresses the activity which remains in the subject, and is not spoken of as acting on any thing else. Thus, the world moves, is a sentence in which the word *moves* is a neuter or intransitive verb, but Bridget moved the table, is a sentence in which the verb *moved* is active and transitive. The Greeks had another voice, called the middle, in which the subject of the verb acts upon itself; thus, Katrina is washing herself, would be expressed in the Greek by a verb in the middle voice; but Katrina is washing the children, is the same verb in the active sense.

ACTON, a piece of defensive armor, covering the body, in the shape of a shirt with short sleeves, descending a little way below the hips. It was nearly identical with the Scottish jack, worn by the moss-troopers and border-riders, whence they were sometimes called jackmen. It was usually made of leather covered by lozenge-shaped pieces of iron, pierced with a hole at the upper angle, through which they were strongly sewed to the buffskin, the lower part of each series falling loosely over the top of that below and beneath it, so that the whole was perfectly pliable, and yielded to every movement of the body with a constant jingling sound. The name is probably a corruption of the French word *Haqueton*, or *Hoqueton*, as it is sometimes spelt, signifying a quilted jerkin. Walter Scott has the word, in his description of the equipment of the border baron in his fine ballad of St. John's Eve:

His acton was leaced, and his buckler braced,
And his helmet of proof he wore,
With a good steel sperthe, at his saddle girle,
Of ten pounds weight and more.

ACTON BURNELL, an English statute, so named because the parliament at which it was passed was held at Acton Burnell, a little village in Shropshire. The date of the statute is Oct. 12, 1283. It is the first statute passed in England affording facilities to merchants for the recovery of the debts due to them, and is therefore often called *Statutum Mercatorum*, or

statute of the merchants. By it the mayor or the sheriff might seize and sell the chattels and lands of the debtor, or, if he had no effects, might detain him in prison until the debt were paid, feeding him meanwhile on bread and water, if he was too poor to support himself, maintenance money to be added to the original debt. The statute of Acton Burnell met with much opposition from the sheriffs. The Jews were excluded from the benefits of this liberal statute, which was passed to encourage the settlement of foreign merchants in England. Barington states that a similar ordinance was not passed in France until the reign of Francis I. in 1536. The statute of merchants is considered an epoch in the social history of the third estate or middle class of England, and indicated their growing power in the state.

ACTON, JOSEPH, for several years prime minister of Naples, born of Irish parents in 1737, died in 1808. He was originally in the French naval service; subsequently he commanded the Tuscan vessels in an unsuccessful expedition against Algiers in 1774. His good conduct there secured his advancement. He was recommended to the king of Naples, was successively minister of the navy, of war, of finance, and finally prime minister.

ACTOPAN, is the name of a town, valley, and district of Mexico. The town is situated 70 miles N. N. E. of the city of Mexico. The population is mainly composed of Othomies Indians, numbering nearly 8,000 families. The valley is very fertile, producing grain and cattle in abundance.

ACTORS AND ACTRESSES. This craft dates its existence back to some centuries before Christ. The earliest mention we find of it in history is in the time of Solon in Greece. It was then attached to the religious rites, and its appliances and influences used to clothe with greater solemnity and effect the sacred celebrations of the Greeks. So high a place had the profession at this period that actors were all paid by the state and trained to the practice of their art at its expense. With intervals of more or less brightness the craft continued up to the time of the Cæsars, when the stage degenerated rapidly, from being disconnected from those religious rites from which it drew its chief distinction, and sinking by degrees in character and estimation, was finally lost altogether in the dark ages. Thus it remained for about five hundred years when it again reappeared in Italy, having been revived by the Roman Catholic priesthood, who were not slow in perceiving its value as a powerful auxiliary to their influence. Loosening, however, by degrees the link which bound it to the church and made it its exclusive instrument, it became again detached from its connection with religion. The church determined, as it could not use the stage, to destroy it, and commenced a vehement attack upon the institution. Actors and actresses were excommunicated and debarred from all the religious benefits and consolations as-

sumed by the Roman Catholic church to be within its exclusive jurisdiction. From this period, which was immediately previous to the Shakspearian epoch, down to our own time, this religious excommunication and social ban have rested on the profession. Occasionally there have been great spirits like Garrick and the Kembles, who, to some extent, have thrown off the general stigma and risen proudly above it by the force of their individual character; but as a body, actors and actresses have been, down to a very recent period, and are still even to some extent regarded as social pariahs. With the increase of intelligence and liberality this feeling is fast passing away, and actors and actresses are beginning to be judged like the members of all other professions, by their public capacity and private worth. The profession of the stage is perhaps the most laborious of all crafts, requiring an almost unceasing mental and physical effort. The duties of an actor comprise a study of new parts and recovery of old ones, occupying on an average from two to four hours a day; an attendance at rehearsal in the morning, occupying on an average two hours a day; and a performance each evening, occupying in winter, four, and in summer, about three hours. The salaries of actors vary considerably; they may however be set down as averaging in France, from 20 to 200 francs a month; in England, from £4 to £20 a month, and in the United States, from \$50 to \$120 per month. Actors who have some acknowledged excellence or peculiar individuality, or are especially attractive, are called stars, and earn generally from \$400 to \$2,500 a month. Actors and actresses, as the records of the stage attest, are proverbially long lived and free from bodily infirmity. Performances are seldom changed from sickness of the performers. In many theatres a season has passed without a single alteration even of a part from illness. This healthiness is doubtless owing to their necessarily active life, and regular exercise not only of the limbs, but also of the internal organs of the throat and lungs, thereby fortifying the weakest portion of the human system. When not addicted to intemperance, to which the exciting character of the life inclines too many of the male portion of the profession, many actors have reached the longest period of the duration of life. They rarely commit crimes against person or property. This is owing mainly to the constant occupation of mind, time, and body in their pursuit, but it may in some degree also be attributable to their softness of feeling and sympathy of character. They are charitable almost to recklessness. An inordinate vanity and irregularity in money matters are among the vices of the profession, but that which, though it may originally have arisen out of their social excommunication, principally tends to continue and delay the removal of the ban, is their looseness on the subject of marriage. Some of the greatest actors, who in other respects are deemed irreproachable, have two or

three wives living; and there is a lavish promiscuousness about the notions of all, male and female, on the subject of family relations; otherwise they are models of excellence, being kind mothers, children, and fathers. It is worthy of mention that this is the only profession open to women on equal terms with the stronger sex.

ACTS OF THE APOSTLES, the fifth book of the New Testament, written by Luke, a physician and painter of Antioch, who had been converted by St. Paul, whose friend and companion he afterwards was, and whom he accompanied to Rome, sharing his first captivity in that city. The Acts of the Apostles could not have been written before A. D. 63, at which time St. Paul was at Rome, and were probably written between that and the period of his death, A. D. 68. The personal acquaintance of the writer with the subject, especially with the life and experiences of St. Paul, must have given him every facility for the work. The Acts include the history of the church in Judea and Asia Minor during a period of about 80 years after the death of Christ. Theophilus (friend of God), mentioned in the dedication, has by some been considered an ideal for the inquiring heathen, by others a real person. The dates in the Acts have been assumed to be, martyrdom of Stephen, A. D. 85, Paul's conversion, A. D. 86, Paul's journey to Rome, A. D. 62 and 68. The style in which the Acts are written is perspicuous, the narrative striking. The principal personage is St. Paul; next to him St. Peter and Philip. The labors and trials of the other apostles, whose missions led them to distant countries, are but slightly adverted to.

ACTUARY, a word generally used to signify the manager of a joint stock company under a board of directors, particularly of an insurance company.

ACUNA. I. **CHRISTOVAL DE**, Spanish Jesuit missionary in the 17th century. He was one of the early explorers of the river Amazon, and was sent in Teixeira's expedition to that river, with the special object of reporting the incidents of the exploration. Father Andres de Artieda was appointed as his associate. The expedition lasted from February to December, 1639. Acuna went to Spain with his history of the expedition, but the distraction of the country prevented the government from taking any interest in the colonization of the country, to which so much energy and talent had been devoted. He returned to South America, and died on his journey from Panama to Lima. The narrative was published at Madrid, 1641, in 4to. II. **PEDRO DE**, Spanish governor of the Philippines and Moluccas, 16th century. He fought at the great battle of Lepanto in 1571, and in 1598 held the post of captain-general of the province of Carthage, and resisted the attacks of the English. He drove the Dutch out of the Moluccas, and annexed them to Spain.

ACUPUNCTURE, a surgical operation employed among the Chinese and Japanese, in

headaches, lethargies, convulsions, colics, &c. It is accomplished by piercing the part which is the seat of the malady with a silver needle. It has recently been adopted, in some cases, by European and American surgeons.

ACUTE DISEASES. An acute disease is one that is severe in character, rapid in its progress, and short in its duration. Chronic disease is the very opposite; it is less severe in character, slow in its progress, and of comparatively long duration. Measles, scarlet fever, small pox, cholera morbus, are acute diseases, which may be more or less severe in character, but always run their course in a short time; and even where they prove fatal, they are rapid in their progress, and of short duration; when neither fatal, nor complicated with other morbid symptoms, they are easily and promptly cured. Diseases are often distinguished by the words acute and chronic, but these terms are not sufficiently definite to form the basis of a general classification of diseases; for many affections are acute in the first instance, and not being cured in this stage of their progress, they abate somewhat in the severity of their symptoms, and assume, first, a subacute form, and then a lingering chronic state, which may continue for months and years, until the vitality of the patient is exhausted, unless medical advice be sought in time to conquer the disease, and renovate the system.—Diseases are more conveniently divided into "general and local," rather than "acute and chronic," the latter words being applicable to two different stages of the same disease, without regard to the periodicity of certain affections, which run their course in a few hours, days, or weeks. General diseases include those which affect the whole system at the same time; local diseases, those which affect mainly some particular tissue, organ, or function, and in which the general disturbance arising therefrom is only secondary.—General diseases are mostly connected with diseases of the blood, which being universally distributed, causes general disturbance, fever, and prostration to the whole organism. This may be caused either by the direct admission of some virus or miasmatic poison into the blood, or by disease of the nervous system, and consequent defective innervation in the organs, perturbation in their functions, and reaction on the blood by defective elaboration or secretion. Eruptive fevers, gout, and rheumatism, are the leading forms of general disease. Irritative fevers, miasmatic fevers, intermittent fevers, remittent or continued fevers, inflammatory remittent fevers, congestive or malignant fevers, hectic fevers, pernicious fevers, country fever, yellow fever, typhus fever, typhoid fever, relapsing fever, rubella, scarlatina, variola or small pox, varioloid, varicella, or chicken pox, vaccina, erysipelas, gout, and rheumatism—some of these are acute diseases, others chronic, but all are general, and easily distinguished from local affections, though erysipelas and gout may seem to hold an ambiguous relation to both classes.—Local diseases are those which are

mainly confined to one set of organs and functions, as the organs of digestion, the respiratory organs, the circulatory organs, secretory glands, and diseases of the nervous system.

ACUTO, GIOVANNI, the name given by Italian historians to Hawkwood, an English leader of a band of free companions, in the 14th century. He fought for the Visconti, and for Gregory XI, and so daring were his ravages of the Florentine territory, that he was paid 180,000 golden florins as a ransom. In Naples he sided with Charles III. against Louis d'Anjou. In the course of a campaign in the contest between Florence and the Visconti, Acuto pitched his camp on a hill. Jacopo del Verme, another leader of condottieri, opened the dykes of the Adige, and surrounded the hill with water, sending at the same time a fox in a cage, as a present to Acuto. His reply was "Good; but the fox does not look at all sad—he will find his way out." He found a crossing-place, and cut his way through his opponents. He died soon after this exploit.

AD LATUS, two Latin words meaning by the side of. A general *ad latus* is a man in Austria who is given as an aid to commandants of an army corps or a province. Lauer was general *ad latus* to the young Archduke John, when in the year 1800 he took the chief command of the Austrian army. Ambassadors and legates had, in former times, their able diplomatists *ad latus*; particularly when they could not speak the language of the court to which they were accredited.

AD LIBITUM, a musical term signifying in Latin, *at pleasure*, which is written over a piece of music to denote that the time may be taken at the performer's pleasure.

ADAFODIA, a Foola town in West Africa, in lat. 13° 6' N. long. 1° 8' E., reputed to be almost as large as Abomey, with a trade in native merchandise nearly as extensive. It has a population of 24,000. The inhabitants are represented as robust and courageous, intelligent and industrious, professing the Mohammedan faith, and without participation in the slave trade.

ADAGIO, a musical term, literally signifying, *leisurely, slowly*, which is used as a measure of time. It denotes that a movement is to be performed slowly and gently, or is applied to an entire composition, or a portion of one, expressive of tender and plaintive emotions.

ADAIR. I. A county in southern Kentucky, of hilly surface, and abounding in forests of good timber. Its area is 450 square miles, and its products Indian corn, tobacco, grass, and wool. The soil is moderately fertile, the county producing in 1850, 537,945 bushels of corn, 509,003 pounds of tobacco, and 24,307 pounds of wool. Population 9,898, of whom 108 are free colored, and 1,707 slaves. There are about 80 churches and nearly 8,000 children in the public schools. Abundant water power may be obtained, and a number of manufacturing establishments are in operation. Capital, Columbia. Adair county was

organized in 1801, and named in honor of John Adair, U. S. senator from Kentucky. II. A county in the N. N. E. part of Missouri, was organized in 1840, and has an area of 570 square miles, with a population in 1856 of 6,535, of whom 85 are slaves. The Chariton river and the north fork of Salt river, flow through it. The land is undulating prairie, suited to the production of grass and grain. In 1850 the crop consisted of 141,370 bushels of Indian corn, 5,801 of wheat, 11,157 of oats, and 32,605 pounds of butter. Capital, Kirksville. III. A county in Iowa, in the S. W. part of the state. Population 668, by the census of 1856. Its area is 576 square miles. Middle river, an affluent of the Des Moines, and the head streams of Nodaway river, run through it. The state road, from Fort Des Moines to Council Bluffs, also traverses the county.

ADAIR. I. JAMES, an English lawyer of eminence. He was in parliament in 1780, and afterwards recorder of London. In 1794 he was employed in the prosecution of the persons accused of high treason, which he conducted with distinguished fairness and humanity. II. A trader and resident among the North American Indians for 40 years. He published a work in 1775 on the American Indians, in which he points out the resemblance between many of their customs and those of the Jews. III. General JOHN, born in 1758, died May 19, 1840, was a representative in the U. S. Congress from Kentucky, and commanded the troops of that state at the battle of New Orleans.

ADAIR, SIR ROBERT, British diplomatist, born May 24, 1763, died Oct. 8, 1855. His father, Robert Adair, was serjeant-surgeon to George III. It is told of him that at the age of six he took an active part in the "Wilkes and Liberty" riots, and helped to break his father's windows as a court employé. He was educated at the great public school of Westminster, and completed his studies at Göttingen. He was distantly related to Charles James Fox, and he was early destined for a political career. He was sent in 1789 on a European tour, with a view to observing the effects of the French revolution. He entered parliament in 1802, and was a strenuous supporter of whig politics. In 1806, Mr. Fox sent him ambassador to Vienna, and in 1808 Mr. Canning sent him to Turkey, although opposed to him in politics. He remained at Constantinople until 1811. Sir Robert Adair continued in opposition until 1831, when the advent of Lord Grey and the whigs to power, again brought him into office. He was sent to Belgium soon after the erection of that territory into a kingdom, and his personal influence was of the greatest importance in averting the consequences of the hostilities between the Dutch and the Belgians, and in negotiating peace. He left memoirs of his residence at St. Petersburg and Vienna, written at the age of 82.

ADAL, a narrow strip of the E. coast of Africa, extending from the Bay of Tadjura to Cape Bab-el-Mandeb, and from thence 800 miles

along the shores of the Red sea to the town and harbor of Massowa. It is inhabited by the Danakil or Affar, a Mohammedan nation, from the most famous tribe of which, Ad Alli, its name is derived. Lat. $11^{\circ} 30'$ to $15^{\circ} 40'$ N. The territory of Adal varies from 120 miles wide at the Bay of Tajurra, to only 40 miles opposite Annesley Bay. There is a low tract along the coast, which rises gradually to a height of 2,000 feet above the sea, in a distance of 25 or 30 miles, and then the ascent is very rapid to the table land of Tigré. On the highest terraces, durra and barley are cultivated in small patches. Camels, mules, asses, goats and sheep abound, the pasturage is generally good, and large quantities of butter are annually sent to Massowa, and thence to Arabia. Wild animals are numerous, and even the lion and elephant are occasionally seen. A large plain, called Harho, is covered with salt three feet thick, which is not only used for culinary purposes, but in Abyssinia as a currency. Adal is peopled by many tribes, which appear to belong to the same stock. They are of a dark brown color, muscular and full body, roundish face, thick crisp black hair, lively eyes, with lips thinner than those of the negroes, and short straight noses divided from the forehead by an indentation. They all live a nomadic life, travelling with their flocks and herds from pasture to pasture. The capital, Aussa, is in the territory of the Mudaito tribe, near the Hawash, and though a large place has never been visited by Europeans. Salt is the only commodity exported from Adal.

ADALBERT. I. A Gallic missionary to the German pagans, A.D. 744. He was accused of heresy and heretical practices by St. Boniface, who charged him among other things with collecting his own hair and nails as relics. He was condemned by a synod held in 745, and died in prison. His disciples were styled Adalbertines. II. Of Prague, the apostle of Prussia, died 997. He was educated by the celebrated Othrich at Magdeburg. In 988 he was chosen bishop of Prague. Discouraged at the failure of his endeavors to convert the Bohemians, he repaired, in 988, to the monastery at Monte Cassino, and afterward to that of St. Alexius at Rome. In 998 he was recalled to his bishopric, but after two years became again disgusted and left. In 995 he baptized St. Stephen at Gran. In 996 he proceeded to Prussia to convert the heathen, by whom the year afterward he was murdered. III. Archbishop of Bremen and Hamburg, died at Goslar, March 17, 1072. He received his office in 1048 from Henry III., whom in 1046 he accompanied to Rome. There he was a candidate for the Papal throne, and barely failed in the election. Pope Leo IX. in whose behalf he had spoken in the synod at Mentz in 1049, made him in 1050 his legate in the North. During the minority of the emperor Henry IV., he usurped, together with Archbishop Hanno of Cologne, the administration of the empire. His haughtiness and vio-

lence made him so obnoxious to the German princes, that in 1066 they forcibly separated him from the emperor; but in 1069 he regained his former power, and kept it until his death.

ADALBERT, HEINRICH WILHELM, grandson of King Frederic William II. of Prussia, and cousin to Frederic William IV., was born at Berlin Oct. 29, 1811. Like all Prussian princes he was obliged at an early age to choose the military career, though perhaps his mental organization and his inclinations would have destined him for scientific pursuits. Instead of a second-rate royal prince he might have become one of those German heroes of science who, like Humboldt, Barth, Vogel, Overweg, Duke Paul of Wurtemberg, and others, have undergone greater dangers for the conquests of science than have been braved by soldiers to satisfy a mad ambition or the most brutal propensities of human nature. As it is, Prince Adalbert has, at least, succeeded in detaching his name somewhat from the common crowd of princes. He has travelled in Holland (1826), Great Britain, (1832), Russia (1834), Turkey, Greece, the Ionian Isles (1837), and in Brazil (1842), and to better advantage for his own mental culture than is the case with most tourists of a high social position. At the age of twenty-nine he was appointed brigadier-general of the Royal Guards artillery, in 1840 major-general, in 1843 inspector-general of the Prussian artillery, and in 1846 lieutenant-general. In 1848 his advice was sought for by the revolutionary provisional government of the German Empire in regard to the establishment of a German national navy; he was also appointed chairman of the national committee on naval affairs. The ephemeral existence of the German navy having been brought to a sudden close, Prince Adalbert became the commander-in-chief of the embryonic Prussian navy, which, on May 1, 1857, consisted altogether of fifty vessels, carrying 206 guns, viz.: two sailing frigates (*Gefion* and *Thetis*), carrying 48 and 38 guns respectively, one sailing corvette (*Amazone*), two steam corvettes (*Daneig* and *Barbarossa*), carrying 12 shell guns each, one transport (*Mercur*), two schooners (*Hela* and *Frauenlob*), 86 gun-boats, and 6 gun-yawls. In this position Prince Adalbert accidentally became the hero of the only engagement in which the Prussian navy has as yet had an opportunity to prove its existence. In Aug. 7, 1856, the prince, when on board the corvette *Danzig*, cruising near the straits of Gibraltar, resolved to reconnoitre a point on the African coast in the vicinity of the Spanish settlement of Melilla, where, in 1852, a Prussian ship had been plundered by the Arab pirates, who, ever since the conquest of Algiers by the French, have infested this portion of the coast, which nominally belongs to the Moroccan province of El Rif, but is, in fact, entirely independent. When the *Danzig* approached the coast, the pirates hoisted a white flag. Thereupon the prince with a few of his men descended into a small boat and pulled toward the shore,

when all at once the pirates commenced firing. Having immediately returned to the corvette, the prince disembarked all the marines, 90 in number, and led them personally up a steep cliff from the crest of which more than 500 pirates, armed with long backwoods-rifles, kept up a murderous fire on the assailants. Having courageously climbed the precipice, the small Prussian force found themselves almost surrounded by the enemy. Lieutenant Niesemann, the second in command, was struck by a ball and expired immediately. Beside him, 7 were killed and 17 wounded, and Prince Adalbert himself was shot through the thigh; thus a retreat became an absolute necessity. It was effected under cover of the Danzig's guns, which made an awful havoc among the pirates when they rushed down the hill in pursuit of the prince's forces. The Danzig returned to Gibraltar, where 5 of the killed were buried, while the remaining 3 had to be left on the ground where they fell. Although the Prussian marines and Prince Adalbert had behaved creditably enough in this small encounter, they, after all, earned more ridicule than glory. The battle of the Rif has been styled an appropriate counterpart of the battle of Bronzell (Nov. 1850), that great action which might have been the beginning of another thirty years' war, but resulted only in the wounding of a trumpeter's mare.

ADALIA, a seaport of Anatolia, Asiatic Turkey, on the gulf of Adalia, lat. $36^{\circ} 52' 2''$ N. long. $80^{\circ} 45'$ E. The town contains a population of 8,000, and the houses, being built on a hill-side, around the harbor, about seventy feet above the level of the sea, rise one above the other like the seats of an amphitheatre.

ADAM, the first man. Various meanings have been ascribed to the word; the most generally recognized is earth-born. The history of Adam, in common with that of the whole antediluvian world, as contained in Genesis, is by some treated as an allegory, intended to convey to the simple intellect of an uncultured people, an intelligible account of the mystery of the world's creation, and to explain some of the momentous questions involved in this earthly being. Others contend for a literal interpretation of the narrative. The question of a common origin of mankind has been much considered of late years, and investigated upon data carefully collected by ethnologists. The controversy has not yet been scientifically settled.

ADAM, ADOLPHE CHARLES, a popular French composer, born in Paris, July 24, 1808, died May 8, 1856. In 1817 he entered the conservatory in Paris, where, after completing his education as a pianist, he studied composition under Reicha and Boieldieu. His earliest compositions were fantasies and variations for the piano-forte, which he set to themes from the popular operas of the day. He afterwards devoted himself to the vaudeville and the operetta. His first important work was the opera of *Pierre et Catharine* (1839), in which he dis-

played much talent, but at the same time great frivolity and want of attention. His later works were far better. In 1832 he composed a ballet for London. His genius developed itself in a new form in the opera, *Le Postillon de Longjumeau* (1836). His compositions are remarkable for elegance and grace rather than for any display or development of deep feeling.

ADAM, ALBRECHT, German painter of battle pieces, born 1786. His passion for the arts having overruled his father's determination to make him a builder, he went to Nuremberg and there received his professional education from Conrad Zweiger, and acquired the friendship of Rugendas, whom he accompanied to Munich in 1807. He saw service in the Austrian campaigns of that epoch, and thereby acquired a practical knowledge of the subjects in which his pencil delights. He was afterwards taken into the service of the viceroy Eugene, who sent him to Italy, where he painted, the battle of Loben. He accompanied Eugene in the campaign of 1812, and reached Moscow, whence, however, he returned to Munich, and afterwards again to Italy, where he remained till 1815, painting cabinet pictures. After the return of his patron from Russia, he prepared a series of drawings illustrative of Eugene's military career, now in the cabinet of Munich.—He painted several grand battle pieces, besides his *Voyage pittoresque militaire* in 100 lithographs, illustrating the Russian campaign. In 1830 he was employed by the king of Wurtemberg; and afterwards settled in Munich under the patronage of King Louis, for whom he painted the battle of the Moskwa.

ADAM, ALEXANDER, Dr., Scotch teacher, born June 1741, died 1809. He was born in humble life, but by his indefatigable industry he acquired the reputation of a good scholar, and eventually received the reward of his perseverance, in an appointment as rector of the high school of Edinburgh in 1771. He is best known by his book on Roman Antiquities, a work of research and utility, which has been, however, in some measure superseded.

ADAM of BREMEN, a German chronicler of the 11th century, who came probably in 1067, at the invitation of Archbishop Adalbert, from Saxony to Bremen, where he died about 1076. He wrote a history of the archbishopric of Hamburg, from the year 788, down to the death of Archbishop Adalbert, 1072. This work contains many interesting facts connected with the history of the northern empires, more particularly of the northern slavonic tribes, which he learned from the Danish king, Svend Estrithson. The book was dedicated to Archbishop Liemar (1072–1101), and was first published in Copenhagen in 1579. It is the only trustworthy work of that day, concerning the history of the North.

ADAM, LAMBERT SIGISBERT, French sculptor. He was born at Nantes, in France, 1700, educated at Paris, and sent to Rome, where he restored the group of Lycomedes, and compos-

ed a design for the fountain of Trevi, for Clement XII. He was afterwards professor in the French academy. He executed the group of Neptune and Amphitrite in the basin at Versailles, and a figure of St. Jerome, in the church of St. Roch. He published a work entitled, *Recueil de sculptures antiques Grecques et Romaines*.—NICOLAS SEBASTIEN, brother of Lambert Sigisbert, died March 27, 1778, was also a member of the academy. He made the Prometheus chained to a rock.

ADAM, ROBERT, architect, born in Edinburgh 1728, died 1792. In his 26th year he went to Italy, and remained there several years. At that time some of his contemporaries were exploring the architectural remains of Athens, but he went instead to Dalmatia, to visit the ruins of Diocletian's palace, and on his return to London, published a work on that structure. In 1764 he was appointed architect to the king, and in the course of a few years designed a great many public and private buildings in England and Scotland. He was among the first, if not the first, to make use in London of a stucco in imitation of stone. He also originated the idea of giving to a number of unimportant private edifices the appearance of one imposing structure.

ADAM DE LA HALLE, a troubadour of the 13th century, died at Naples about 1286. He was born at Arras, a town celebrated for its poets and minstrels. His pieces were not merely songs but of a dramatic character, and he may be considered one of the founders of the French drama.

ADAM'S APPLE, the protuberance in the fore part of a man's throat, from the tradition that it was produced by a portion of the forbidden fruit which Adam ate, and which stuck there.

ADAM'S BRIDGE, a broad sand bank extending from the southern point of the Indian peninsula to the island of Ceylon. It has two passages, one on the Ceylon coast and the other on the Indian coast, neither of which has more than six feet of water at high tide.

ADAM'S PEAK, the highest point in the island of Ceylon. It is about 6,500 feet high, and on the top is a hollow about two feet long, which the natives believe to be the print of Buddha's foot made when he took his flight from earth to heaven. They perform pilgrimages to the spot and offer sacrifices on it. The locality is also believed to have been the first abode of man, and a poisonous fruit with a fair exterior, which grows there, is called the Adam's Apple.

ADAMANT, a poetical word applied to the diamond or any other very hard substance; it is only used to express the idea of extreme hardness. The original meaning of the word, which is derived from the Greek, is, *what cannot be broken*.

ADAMANTINE SPAR, a name given to a variety of the mineral sapphire, when this is of a hair-brown color.

ADAMAWA, the Mohammedan name, while

Fumbina is the Pagan designation, of a country of central Africa visited and described for the first time to the European world by Dr. Barth in the summer of 1851. It lies between 5° and 10° N. lat., and 12° and 17° E. long. It is about 200 miles long from S. W. to N. E. From N. W. to S. E. it seldom exceeds 70 miles. Its capital is Yola, a city of about 12,000 inhabitants, where the governor of Adamawa, who owes allegiance to the Fellatah sultan of Sakatu, resides. It is a Mohammedan sub-kingdom engrafted upon a mixed stock of pagan tribes, the conquest of the valorous and fanatic Fellatah chieftain Adama (whence the name Adamawa), over the great pagan kingdom of Fumbina. Adama was the father of the present governor. This territory is as yet far from being entirely subject to the Mohammedan conquerors, who in general are only in possession of detached settlements, while the intermediate country, particularly the more mountainous tracts, is still in the hands of the independent pagans. The people in this part of the country are engaged in constant warfare. While the region north from the Benuwa, between Yola and Homarruwa, is entirely independent, and inhabited by warlike pagan tribes, the best subjected tract seems to be that between the Wandala and the Musgu country, where the settlements of the conquering tribe are very compact. It is one of the finest countries of central Africa, irrigated as it is by numerous rivers, such as the Benuwa, or left branch of the Kawara, and the Faro, and diversified with hill and dale. In general it is flat, rising gradually towards the south to 1,500 feet or more, and broken by separate hills or extensive groups of mountains. Mount Atlantika, about 9,000 feet high, and about 40 miles in circumference, is the largest group in Adamawa. It is inhabited by independent pagans, with seven different chiefs. Yet although the general elevation of the country is the same, the nature of the different districts varies greatly; thus in the neighborhood of Mount Atlantika, which attracts the clouds, the rainy season sets in as early as January, so that the crop is ripe by the end of April or beginning of May, while in Yola the rains rarely begin before March. The grain commonly grown in the country is the *holcus sorghum*. The country about Mbum, however, produces hardly any thing but rogo, or yams, which form the daily and almost sole food of the inhabitants. Meat is so dear that a goat will often bring the price of a female slave. Ground nuts are plentiful both in the eastern and western districts. A tolerable quantity of cotton, called pottolo in Adamawa is cultivated, but indigo, or "chachare," is very rare. In the richer plantations are to be found both kinds of the banana or *ayabaja*, the gonda or papaya, several species of the guro tree, the pandanus, the kajilia, the monkey bread-tree or *Adansonia*, the rimbi or bombax, and numerous other kinds. Of the palm tribe, the deleb

palm, or gigna, and the *elais Guineenses* are frequent, but strictly limited to certain localities while the date tree is very rare. Among the bushes, the *palma Christi* or *ricinus* is extremely common. There are hot springs in the country of the Bakr Yemyen which are said to be of a high temperature, and palatable. Of animals, the elephant is exceedingly frequent, not only the black or gray, but also a yellow species. The rhinoceros is often met with, but only in the eastern part of the country. The wild bull is very common. The most singular animal is the *ayu*, which is a mammal, lives in the river, and resembles a seal. It comes out of the river by night, and feeds on the fresh grass growing on its banks. With regard to domestic animals, cattle were introduced by the Fellatahs some two or three hundred years ago. There is an indigenous variety of ox, but quite a distinct species, not three feet high, and of a dark gray color; this is called *muturu*. The native horse is feeble and small; the best horses come from the northern districts. The best sort of iron is found. Camels are very rarely brought here, as they cannot long endure the climate. The standard of value is the native cotton, woven in narrow strips called *leppi*, of about 2½ inches in width. Soap is a very important article in any country inhabited by the Fellatahs, and it is prepared in every household, while in other regions it is not procurable. There is a great respect for age. The Fulbe or Fellatahs are the ruling class, and inhabit its chief cities. *Fulfulde* is their language. The pagans call their native tongue *Zani*. The Mohammedan population dress both well and decently. The pagans prefer nakedness, and never wear more than a narrow leathern strap between their legs and fastened on their loins. The pagan women wear a thin pointed metal plate stuck through the under lip by way of ornament, but they have nothing like tattooing. Their complexion is a yellowish red. There are several Arab colonies in Adamawa. Arab architects are employed by the governors, and they are everywhere the missionaries of civilization to the simple Adamawans. Slavery exists on an immense scale, and there are many private individuals who own more than 1,000 slaves. The governor of Yola, who calls himself a sultan, receives every year in tribute, besides horses and cattle, 5,000 slaves. (See Barth's "Travels in Central Africa," London, 1857, which is at this moment the only authority on the subject.)

ADAMI, ADAM, a German ecclesiastic, born 1606, died 1668. He was plenipotentiary from the German clergy at the congress of Munster, and wrote the history of the negotiations. He died titular bishop of Hieropolis.

ADAMITES, a sect of the 2d century, who held that the merits of Christ restored them to Adamic innocence. Consequently, they appeared naked in their assemblies, and rejected marriage. They soon disappeared, but were revived again in the 12th century by Tanhelin at

Antwerp, who taught that fornication and adultery were meritorious. In Savoy, they indulged in the most disgusting brutalities in open day. One Picard also revived the sect among the Hussites in the 15th century in Germany and Bohemia. They went nude at all times, and had women in common. The theology of the Adamites of all these periods seems to have been a compound of Gnosticism and Asceticism.

ADAMS, the name of counties in several of the United States. I. A southern county in Pennsylvania, on the Maryland border, containing an area of 530 square miles. The head waters of Monocacy river take their rise here, and small creeks abound. Along the south border a ridge called South Mountain extends, and the general surface of the county is uneven. In 1850 the population was 25,981, and the crops amounted to 318,842 bushels of wheat, 293,979 of corn, 261,779 of oats, 86,639 tons of hay, and 620,024 lbs. of butter. It contained 27 churches, 4 newspaper presses, and had 6,209 pupils in the public schools. In the South Mountain, copper and Potomac marble are found, and the copper mines have been worked with some success. It was settled about 1740 by immigrants, Scotch and Irish, organized in 1800, and named after John Adams, second president of the United States. Capital, Gettysburg. II. A south-western county in Mississippi, has an area of 440 square miles. On the west the Mississippi river divides it from Louisiana, on the south it is bounded by the river Homochitto. Natchez, the capital, is the largest city in the state. Population in 1850, 18,601, of which 258 were free colored, and 14,359 slaves; products, 334,353 bushels of corn, 85,220 of sweet potatoes, and 17,478 bales of cotton. There were 12 churches, 4 newspapers, 820 children in the public, and 195 in the private schools, in the county. The land is highly productive. III. A southern county in Ohio, divided from Kentucky by the Ohio river, organized in 1797. The surface is hilly and well timbered, and the soil fertile. Population in 1850, 18,638; products, 767,798 bushels of corn, 128,904 of wheat, 115,797 of oats, and 222,195 lbs. of butter. It had 87 churches, 1 newspaper, and 4,500 pupils in the public schools. In the south-east part of the county are valuable quarries and iron mines, near the river. Capital, West Union. IV. An eastern county of Indiana, bordering on Ohio, containing 324 square miles. It is drained by the Wabash and St. Mary's rivers. The soil is productive and the surface nearly level. Population in 1850, 5,791; products, 101,680 bushels of corn, 52,292 of wheat, 3,388 tons of hay, and 9,582 lbs. of wool. There were 5 churches, 1 newspaper, and 555 children in the public schools. Forests of oak, beech, ash, hickory, and elm, cover a large portion of the county. Organized in 1836. Capital, Decatur. V. A western county in Illinois, divided from Missouri by the Mississippi river, has an area of 760 square miles. Bear creek, an affluent of the Mississippi, drains the N. W.

part. Surface modulating, and covered with forests, soil rich and to a great extent cultivated. Population in 1855, 34,811; products in 1850, 2,092,718 bushels of corn, 502,084 of wheat, 277,201 of oats, 10,878 tons of hay, 340,258 lbs. of butter, and 59,541 of wool. In addition to these, pork is raised in large quantities. There were 80 churches, 7 newspapers, and 4,000 pupils in the public schools. VI. A south-western county in Iowa, with an area of 432 square miles. The Nodaway river intersects it and flows south-west, while several of its head streams drain it. Population 1019 by the census of 1856. VII. A western county in Wisconsin, with an area of 800 square miles. The river Wisconsin flows from north to south through it, and the Lemonweir river also drains it. These streams afford abundant water power. Large forests cover the county, and large quantities of lumber are cut and rafted down the Wisconsin. Population in 1855, 6,868; products in 1850, 30,533 bushels of wheat, 40,675 of oats, 23,149 of corn, 3,051 tons of hay, and 33,073 lbs. of butter.

ADAMS, a post-township of Berkshire co., Massachusetts, intersected by Hoosack river, and noted for its manufactures. Saddle Mountain is in its vicinity, and across a stream called Hudson's brook is a natural bridge. Pop. 6,980.

ADAMS, CHARLES BAKER, professor of chemistry and zoology in Amherst college, Mass., was born at Dorchester, Jan. 11, 1814, and died at St. Thomas, Jan. 19, 1853. Soon after graduating at Amherst, he was associated with Professor Edward Hitchcock in a geological survey of New York. In 1837 he accepted the appointment of tutor in Amherst college. In 1838 he was selected to fill the chair of chemistry and natural history in Middlebury college, Vermont, which he occupied till 1847, when he resumed the professorship which he had previously held at Amherst, and kept it until his decease. In 1845, 1846, and 1847, he was engaged in a geological survey of Vermont. Between 1844 and 1851 he made several journeys to Jamaica and other parts of the West Indies, for scientific purposes. He was the author of "Contributions to Conchology," "Monographs of Several Species of Shells," and other treatises. Not long before his death, he published a useful work on elementary geology, in which he was assisted by Professor Gray, of Brooklyn.

ADAMS, HANNAH, one of the earliest female writers in America, the author of a "View of Religious Opinions," a "History of New England," and a "History of the Jews," was born at Medfield, near Boston, in 1756, and died at Brookline, Mass., Nov. 15, 1832. Her father, who kept a country store, was a man of literary tastes. She showed at an early age a fondness for study, and acquired a knowledge of Greek and Latin from some divinity students boarding with her father. He failed in business when she was but seventeen, thus obliging his family to provide for themselves. During the Revolutionary war she supported herself by

making lace, and afterwards by teaching. Her "View" was published in 1784, and met a ready sale. Her "History of New England" next appeared in 1799, and was likewise successful, but the labor which it cost seriously impaired her health. Her writings, though extensively read, brought her little pecuniary profit, yet they secured her many friends, some of them persons in high station, among whom President Adams and the Abbé Gregoire may be enumerated. With the latter she carried on a correspondence respecting the Jewish nation, a history of which she next engaged in writing. He was then striving to obtain the emancipation of the Jews in France, and afforded her much valuable assistance in the preparation of this her last work of importance. During the closing years of her life she enjoyed an annuity, provided by the liberality of some friends in Boston. She was the first person whose remains were interred in Mt. Auburn cemetery.

ADAMS, ISAAC, born in New England at the beginning of this century, is the inventor of the most perfect power printing press yet in use. Adams's presses are manufactured by himself in Boston, and are used in all parts of the United States. The prominent points of the invention are as follows: 1. The type-table never moves from under the pressing plate; it has simply a short up and down motion, while the frame holding the paper is movable. 2. A catch, acted upon by the foot of the feeder, unyokes the type-table the moment it is touched, and thus back printing is generally prevented. 3. There is a fly for collecting the printed sheets into a pile, instead of a boy as was usual in earlier power presses.

ADAMS, JASPER, D. D., president of Charleston college, South Carolina, born at Medway, Mass., in 1793, graduated at Brown university in 1815, and died Oct. 25, 1841. Soon after he left college he was made professor of mathematics at Brown university. In 1824 he assumed the direction of Charleston college, but disliking the system on which it was organized, soon after took charge of Geneva college, in New York. In 1827 he was persuaded to return to Charleston, and managed that institution for nine years, when he left it in a highly prosperous state. After preparing a treatise on moral science, he was for two years chaplain at the West Point academy, and then returned to South Carolina, where he died.

ADAMS, JOHN, second president of the United States, born Oct. 19, 1735, in that part of the town of Braintree, Massachusetts, on the south shore of Boston harbor, and some ten miles distant from Boston, since erected into the town of Quincy, where he died July 4, 1826. He was great-grandson of Henry Adams, who emigrated from England about 1640, with a family of eight sons; and became one of the early settlers in Braintree, where he had a grant of 40 acres of land; in which town and the neighborhood his descendants continue to reside. The father of John Adams was a deacon

of the church, and selectman, a farmer of limited means, to which he added the business of shoemaking. He was enabled, however, to give a classical education to his eldest son John, who graduated at Harvard college in 1755. The young Adams's first occupation after graduating, was the charge of the grammar school in Worcester, Mass. The war with France, for the possession of the western country, was then at its height; and in a remarkable letter to a young friend, which contains some curious prognostications as to what would be in a hundred years the relative population and commerce of England and her colonies, young Adams describes himself as having turned politician. From this date his interest in public affairs commenced. His school he found but "a school of affliction," from which he endeavored to gain relief by devoting himself, in addition, to the study of the law. For this purpose he placed himself under the tuition of the only lawyer of whom Worcester, though the shire town of the county, could then boast. He had thought seriously of the clerical profession, but according to his own expressions in a contemporary letter, "the frightful engines of ecclesiastical councils, of diabolical malice, and Calvinistic good nature," of the operation of which he had been a witness in some church controversies in his native town of Braintree, had "terrified him out of it." The law was not even his second choice. Already he had longings for distinction. Nothing but want of interest and patronage prevented him from enlisting in the army. Could he have obtained a troop of horse, or a company of foot, he would, so one of his published letters declares, infallibly have been a soldier. After two years of study at Worcester he returned to his father's house in Braintree, and in 1758 commenced life in Suffolk county, of which Boston was the shire town. He gradually introduced himself into practice, and in 1764 married Abigail Smith, a daughter of the minister of the neighboring town of Weymouth, and with connections who occupied a social position superior to that of Mr. Adams's own family. What was still more to the purpose, she was a lady of superior abilities and good sense, and admirably adapted to make him happy. Very shortly after his marriage, the attempt at parliamentary taxation diverted him from law to politics. He promoted the call of a town meeting in Braintree, to instruct the representatives of the town on the subject of the stamp act, and the resolutions which he presented at this meeting were not only voted by the town, but attracted great attention throughout the province, and were adopted word for word by more than forty different towns. Yet, Adams, as appears by his published diary, was somewhat alarmed at the violence of the mob in destroying the furniture of Oliver, the stamp distributor, and of Governor Hutchinson, and not a little vexed, as well as alarmed, at the interruption to his own business, caused by the refusal of the judges to

go on without stamps. He was somewhat consoled, however, by an unexpected appointment on the part of the town of Boston, to be one of their counsel along with Jeremiah Gridley, the king's attorney and head of the bar, and James Otis, the celebrated orator, to support a memorial addressed to the governor and council, that the courts might proceed with business, though no stamps were to be had. It fell to Adams, as junior counsel, to open the case for the petitioners, and he boldly took the ground in which his two seniors, the one from his position, the other from his commitments, in his recently-published book on the "Rights of the Colonies," were prevented from following him—that the stamp act was absolutely void—parliament having no right to tax the colonies. Nothing, however, came of this application; the governor and council declined to act, on the ground that it belonged to the judges, not to them, to decide. The repeal of the stamp act soon put an end to the suspension of business, which, indeed, had only extended to the superior court, the inferior courts going on without stamps. It was on this same occasion that Mr. Adams first made his appearance as a writer, selecting for that purpose the columns of the "Boston Gazette." Among other papers which he published was a series of four articles, which attracted so much attention as to be republished in a London newspaper, and subsequently in a collection of papers relating to the taxation controversy, printed together in a volume. The papers as originally published had no title; in the printed volume they were called an "Essay on the Canon and Feudal Law." They began indeed with some reference to these subjects, but might, with much more propriety, have been entitled an "Essay on the Government and Rights of New England." Mr. Adams's style was formed, as is evident from these pieces, from the moment he began to write. They may be found in his collected works, edited by his grandson. Mr. Adams's law business continued gradually to increase and in 1768 he removed to Boston. In that and the next year he was one of the committee to draft instructions to the representatives of the town—a duty which the committee entrusted to him, though he positively refused to attend and speak at town meetings. In 1770 he was himself chosen a representative to the general court, notwithstanding he had just before hazarded his popularity, by accepting a retainer to defend Captain Preston and his soldiers, for their share in what was known as the "Boston Massacre"—a defence conducted with success, in spite of the strong prejudices which it had to encounter. Adams's acceptance of the post of representative interfered greatly with his business as a lawyer, on which he depended for support, and which by this time had grown to be greater than that of any lawyer in the province. But he entered with his customary energy into the duties of his new position, becoming from this time forward the chief legal adviser of the patriot party, and now, for the first time, an ac-

tive and conspicuous leader among them. Partly perhaps to escape this leadership and the loss of time, the labor, and responsibilities which it imposed, as well as to regain his health which began to suffer, Mr. Adams removed his residence back to Braintree, resigning his seat in the legislature, but still retaining his law office in Boston. A comparative lull in politics for two or three years made his presence in the legislature less indispensable, but still as to all the most important matters of controversy with Governor Hutchinson he was consulted and gave his aid. Indeed, it was not long before he again moved back to Boston, though still resolving to avoid politics and to devote himself to his profession. He wrote, soon after, a series of letters in a newspaper (republished in his collected works, vol. iii.) on the then mooted question of the independence of the judiciary, and the payment by the crown of the salaries of the judges. Soon after he was elected by the general court to the provincial council, but was negatived by Governor Hutchinson. The destruction of the tea and the Boston port bill, that followed, soon brought matters to a crisis. These events produced the congress of 1774.—Mr. Adams was chosen one of the five delegates from Massachusetts, and his visit to Philadelphia on this business, was the first occasion of his going beyond the limits of New England.—In the discussions in committee on the declaration of colonial rights, he took an active part in favor of resting those rights upon the law of nature as well as the law of England; and after the substance of the resolutions had been agreed upon, he was appointed to put them into shape. In his diary, published in the second volume of his collected works, and his contemporaneous letters written to his wife and published by his grandson, the most trustworthy and graphic descriptions are to be found of the members and doings of that famous but little known body. The session concluded, Mr. Adams left Philadelphia with no expectation, as he noted down at the time, of ever seeing it again. Immediately on his return to Massachusetts he was chosen by the town of Braintree a member for that town of the provincial congress then in session. That congress had already appointed a committee of safety, vested with general executive powers; had seized the provincial revenues; had appointed general officers; collected military stores, and taken steps towards organizing an army of volunteer minute men. Governor Gage had issued a proclamation denouncing these proceedings, but no attention was paid to it; Gage had no support except in the five or six regiments which formed the garrison of Boston, a few trembling officials, and a small minority of timid adherents, while the recommendations of the provincial congress had, by the common consent of the people, all the force of law. Shortly after the adjournment of this congress, Adams applied himself to answering, through the newspapers, a champion of the mother country's claims, who, under the

nom de plume of Massachusettsensis, had commenced a series of able and effective papers in a Boston journal, and to whom Adams replied, under the signature of *Novanglus*.—These essays appeared weekly during the winter of 1774, but were cut short by the battle of Lexington. An abridgment of them was published in Almon's "Remembrancer" for 1775, under the title of "A History of the Dispute with America," and afterwards in a separate pamphlet. They have also been twice reprinted entire in America, and are given in the 4th volume of Adams's collected works. Their value consists in the strong contemporaneous view which they present of the origin of the struggle between the colonies and the mother country, and of the policy of Bernard and Hutchinson as governors of Massachusetts, which did so much to bring that struggle on. Like all Mr. Adams's writings, they are distinguished by a bold tone of investigation, a resort to first principles, and a terse, clear, and pointed style; but like all his other writings, having been produced piece-meal and on the spur of the moment, they lack order, system, polish, and precision.—In the midst of the excitement produced by the battle of Lexington—which at once brought up the spirit even of the most hesitating patriots to the fighting point, and which was speedily followed by the seizure of the fortresses of Ticonderoga and Crown Point, and by other similar seizures in other colonies—Adams set out for Philadelphia to attend the continental congress of 1775, of which he had been appointed a member. This second congress, though made up for the most part of the same men, was a wholly different body from its predecessor. That was a mere consulting convention. The new congress speedily assumed, or rather had thrust upon it, by the unanimous consent of the patriots, the exercise of a comprehensive authority, in which supreme, executive, legislative, and in some cases, judicial functions were united. In this busy scene the active and untiring Adams, one of whose distinguishing characteristics was his capacity for business and fondness of it, found ample employment, while his bold and pugnacious spirit was not a little excited by the hazards and dignity of the great game in which he had come to hold so deep a stake. Adams had made up his mind that any reconciliation with the mother country was hopeless. The majority of congress were not yet of that opinion. Under the lead of John Dickinson, though against the strenuous resistance of Adams and others, that body voted still another and final petition to the king. Adams succeeded, however, in joining with this vote one to put the colonies into a state of defence, though with protestations that the war, on their part, was defensive only, and without any intention to throw off their allegiance. Not long after, congress was brought up to the point of assuming the responsibility and control of the military operations which New England had commenced by laying siege to Boston, in which

town Gage and his troops were shut up, and before which lay encamped an impromptu New England army of 15,000 men, drawn together immediately after the battle of Lexington.—Urged by the New England delegates, congress agreed to assume the expense and control of this army. Adams, in his autobiography, claims the honor of having first proposed Washington for the chief command, a concession intended to secure the good will and firm coöperation of Virginia and the southern colonies. Those colonies urged General Lee for the second place in the army, but Adams insisted on giving that to Artemas Ward, then commanding the New England army before Boston. He supported Lee, however, for the third place.—Having assumed the direction of this army, provided for its reorganization, and issued bills of credit to support it, congress took a short recess. Adams returning home, sat in the interval as a member of the Massachusetts council, which treating the office of governor as vacant, had, under a clause of the provincial charter intended to meet such cases, assumed the executive authority. On returning to Philadelphia in September, Adams found himself in hot water. Two confidential letters of his, written during the previous session, had been intercepted by the British in crossing Hudson river, and had been published in the Boston papers. Not only did these letters evince a zeal for decisive measures, which made the writer an object of suspicion to the more conservative of his fellow members of congress, but his reference in one of them to "the whims, the caprice, the vanity, the superstition, the irritability" of some of his colleagues, and in particular to John Dickinson, as "a certain great fortune but piddling genius," made him personal enemies who never forgave him. But though for the moment an object of distrust to some of his colleagues, this did not save him from hard work. "I am engaged in constant business," so he wrote about this time, "from seven to ten in the morning, in committee, from ten to four in congress, and from six to ten again in committee. Our assembly is scarcely numerous enough for the business; everybody is engaged all day in congress, and all the morning and evening in committees." The committee which chiefly engaged Mr. Adams's attention at this time, was one on fitting out cruisers, and on naval affairs generally. This committee laid the first foundation of an American navy, a body of rules and regulations for which—the basis of our existing naval code,—was drawn up by Adams. Governor Wentworth having fled from New Hampshire, the people of that province applied to congress for advice as to the method of administration they should adopt. Adams seized the opportunity to urge the necessity of advising all the provinces to proceed at once to institute governments of their own. The news which soon arrived of the supercilious treatment of the petition of congress to the king, added strength to his views, and the matter being referred to a com-

mittee on which Adams was placed, a report in partial conformity to his ideas was made and adopted. Having been offered the post of chief justice of Massachusetts, Adams, towards the end of the year, returned home to consult on that and other important subjects. He took his seat in the council of which he had been chosen a member immediately on his arrival, and was consulted by Washington both as to sending General Lee to New York, and as to the expedition against Canada. It was finally arranged that while Adams should accept the appointment of chief justice, he should still remain a delegate in congress, and, till more quiet times, should be excused from acting as judge. Under this arrangement he returned to Philadelphia early in 1776. He never took his seat as chief justice, but resigned that office the next year.—Advice similar to that to New Hampshire, on the subject of assuming government, as it was called, had been shortly after given upon similar applications to congress from South Carolina and Virginia. Adams was much consulted by members of the southern delegation (as being better versed than themselves in the subject of republicanism, both by study and experience, coming, as he did, from the most thoroughly republican section of the country), concerning the form of government which they should adopt. Of several letters which he wrote on this subject, one more elaborate than the others was printed, under the title of "Thoughts on Government applicable to the present state of the American colonies." This pamphlet, largely circulated in Virginia, as a preliminary to the adoption of a form of government by that state, was, to a certain extent, a rejoinder to that part of Paine's famous pamphlet of "Common Sense," which advocated government by a single assembly. It was also intended to controvert the aristocratic views, somewhat prevalent in Virginia, of those who advocated a governor and senate for life. Adams's system of policy embraced the adoption of self-government by each of the colonies, a confederation, and treaties with foreign powers. This system he continued to urge with zeal and increasing success, till finally, on May 18, he carried a resolution through congress, by which so much of his plan was indorsed by that body as related to the assumption of self-government by the several colonies. The first step thus taken, the others soon followed. A resolution that the United States "are and ought to be free and independent," introduced by R. H. Lee, under instructions from the Virginia convention, was very warmly supported by Adams, and carried, seven states to six. Three committees, one on a declaration of independence, another on confederation, and a third on foreign relations, were shortly after appointed. Of the first and third of these committees Adams was a member. The Declaration of Independence was drawn up by Jefferson, but on Adams devolved the task of battling it through congress in a three days' debate, during which it under-

went some curtailment. The plan of a treaty reported by the third committee, and adopted by congress, was drawn up by Adams. His views did not extend beyond merely commercial treaties. He was opposed to seeking any political connection with France, or any military or even naval assistance from her or any foreign power.—On June 12, congress had established a board of war and ordnance, to consist of five members, with a secretary, clerk, &c.,—in fact, a war department. As originally constituted, the members of this board were taken from congress, and John Adams was made its chairman or president. This position, which was one of great labor and responsibility, as the chief burden of the duties fell upon him, he continued to hold for the next eighteen months, with the exception of a necessary absence at the close of the year 1776, to recruit his health. The business of preparing articles of war for the government of the army was deputed to a committee composed of Adams and Jefferson; but Jefferson, according to Adams's account, threw upon him the whole burden, not only of drawing up the articles—which he borrowed mostly from those of Great Britain—but of arguing them through congress, which was no small task. Adams strongly opposed Lord Howe's invitation to a conference, sent to congress after the battle of Long Island, through his prisoner, General Sullivan. He was, however, appointed one of the committee for that purpose, along with Franklin and Rutledge, and his autobiography contains some curious anecdotes of the visit.—Beside his presidency of the board of war, Adams was also chairman of the committee upon which devolved the decision of appeals in admiralty cases from the state courts. Having thus occupied, for nearly two years, a position which gained him the reputation among at least a portion of his colleagues, of having "the clearest head and firmest heart of any man in congress," he was appointed, near the end of the year 1777, a commissioner to France to supersede Deane, whom congress had determined to recall. He embarked at Boston, in a frigate of the same name, on Feb. 12, 1778, reached Bordeaux after a stormy passage, and arrived on April 8 at Paris. Already before his arrival the alliance with France had been completed, and his stay was not long. He found that a very great antagonism of views and feeling had arisen between the three commissioners, Franklin, Deane, and Arthur Lee, of whom the embassy to France had been originally composed, and as the recall of Deane had not reconciled the other two, Adams advised, as the only means of giving unity and energy to the mission, that it should be intrusted to a single person. This suggestion was adopted, and in consequence of it, Franklin having been appointed sole ambassador in France, Adams returned home in the same French frigate which took out the new French minister, the Chevalier de la Luzerne. He arrived at Boston just as a convention was

about to meet to form a state constitution for Massachusetts; and being chosen a delegate from his native town of Braintree, he took a leading part in its formation. Before this convention had finished its business, he was appointed by congress, minister to treat with Great Britain for peace and commerce, under which appointment he sailed again for France in 1779, in the same French frigate in which he had returned. Very contrary to his own inclinations, Mr. Adams was prevented by Vergennes, the French minister of foreign affairs, from making to Great Britain any communications of his powers. In fact, Vergennes and Adams already were and continued to be to each other objects of serious distrust, in both cases quite unfounded. Vergennes feared lest advances towards treating with England might lead to some sort of reconciliation with Great Britain, short of the independence of the colonies, which was contrary to his ideas of the interest of France. The communications made to him by Gerard, the first French minister in America, and Adams's connection with the Lees, whom Vergennes suspected, though unjustly, of a secret communication through Arthur Lee, with the British ministry, led him to regard Mr. Adams as the appointee of a party in congress desirous of such a reconciliation; nor did he rest till he had obtained from congress, some two years after, the recall of Mr. Adams's powers to negotiate a treaty of commerce, and the conjunction with him of several colleagues to treat for peace, of whom Franklin, who enjoyed his entire confidence, was one. Adams, on the other hand, not entirely free from hereditary English prejudices against the French, vehemently suspected Vergennes of a design to sacrifice the interests of the United States, especially the fisheries and the western lands, to the advancement of the Spanish house of Bourbon. While lingering at Paris, with nothing to do except to nurse these suspicions, Adams busied himself in furnishing communications on American affairs to a semi-official gazette, the *Mercure de France*, conducted by M. Genet, chief secretary in the foreign bureau, and father of the French minister in America, who subsequently rendered that name so notorious. Finding his position at Paris not very comfortable, in July, 1780, he proceeded to Holland, his object being to form an opinion as to the probability of borrowing money there. Just about the same time he was appointed by congress to negotiate a Dutch loan, Laurens, who had been selected for that purpose, being not yet ready to leave home. By way of enlightening the Dutch as to American affairs, Adams published in the *Gazette of Leyden*, and in a magazine called *Politique Hollandaise*, a number of papers and extracts, including several which, through a friend, he procured to be first published in a London journal, to give to them an English character. To these he added a direct publication of his own, afterwards many times reprinted, and to be found in the seventh volume of his collected works under the title of

"Twenty-six letters upon Interesting Subjects, respecting the Revolution in America." He had commenced negotiations for a loan, when his labors in that direction were interrupted by the sudden breach between England and Holland, consequent upon the capture of Laurens, and the discovery of the secret negotiation carried on between him and Van Berkel, of Amsterdam, which, though it had been entered upon without authority from the Dutch states, the British made the pretence for a speedy declaration of war. Adams was soon after appointed minister to Holland, in place of the captured Laurens, and at the same time was commissioned to sign the articles of the armed neutrality, which had just made their appearance on the political scene. Adams presented memorials to the Dutch government, setting forth his powers in both respects, but before he could procure any recognition, he was recalled in July, 1781, to Paris, by a notice that he was needed there in his character of minister, to treat of peace. Adams's suspicions of Vergennes had, meanwhile, been not a little increased by the neglect of France to second his applications to Holland. With Vergennes the great object was peace. The French finances were sadly embarrassed. Vergennes wished no further complications to the war, and, provided the English colonies would be definitively separated from the mother country, which he considered indispensable to the interest of France, he was not disposed to insist on any thing else. It was for this reason that he had urged upon congress, through the French minister at Philadelphia, and just about this time had succeeded in obtaining from congress—though the information had not yet reached Paris—not only the withdrawal of Adams's commission to treat of commerce, and the enlargement to five of the number of commissioners to treat of peace, but an absolute discretion intrusted to the negotiators as to every thing except independence; and the additional direction that in the last resort they were to be governed by his (Vergennes) advice. The cause of sending for Adams, who still occupied, so far as was known at Paris, the position of sole negotiator for peace, was the offer of a mediation on the part of Russia and the German empire. But this offer led to nothing. Great Britain haughtily rejected it on the ground that she would not allow France to stand between her and her colonies.—Returning to Holland, Mr. Adams, though still unsupported by Vergennes, pushed with great energy his reception as ambassador by the states-general, which at length, April 19, 1782, he succeeded in accomplishing. Following up this success with his customary perseverance he succeeded, before the end of the year, in negotiating a Dutch loan of two millions of dollars, the first of a series which proved a chief financial resource of the continental congress in its later days. He also succeeded in negotiating a treaty of amity and commerce. His success in these negotiations, considering the obstacles he had

to encounter, and the want of support from Vergennes, he was accustomed to regard as the greatest triumph of his life.—Before this business was completed, Mr. Adams received urgent calls to come to Paris, where Jay and Franklin, two of the new commissioners, were already treating for peace, and where he arrived Oct. 26. Though Mr. Jay had been put into the diplomatic service by the procurement of the party in congress in the French interest, his diplomatic experience in Spain had led him to entertain the same doubts that Adams did as to the sincere good will of Vergennes. A confidential dispatch from M. Marbois, French secretary of legation in America, intercepted by the British, and which Oswald, the British negotiator at Paris, communicated to Franklin and Jay, with a view to make bad feeling between them and the French minister, had, along with other circumstances, induced Franklin and Jay to disregard their instructions, and to proceed to treat with Oswald, without communicating that fact to Vergennes, or taking his advice as to the terms of the treaty, a procedure in which Adams, after his arrival, fully concurred. It was chiefly through his energy and persistence that the participation of America in the fisheries was secured by the treaty, not as a favor or privilege, but as a right, a matter of much greater importance than then now, the fisheries being at that time a more important branch than now of American maritime industry. Immediately upon the signature of the preliminary articles of peace, Adams asked leave to resign all his commissions and to return home, to which congress responded by appointing him a commissioner jointly with Franklin and Jay, to negotiate a treaty of commerce with Great Britain. His first visit to England was, however, in a private character, to recruit his health, after a violent fever with which he had been attacked shortly after signing the treaty of peace. He spent some time first at London, and afterward at Bath, but while still an invalid, he was recalled, in the dead of winter, to Holland, which he reached only after a very stormy and uncomfortable passage, there to negotiate a new loan, as the means of meeting government bills drawn in America, which were in danger of protest from want of funds,—a business in which he succeeded, though not without paying a pretty high premium. Adams was included along with Franklin and Jefferson—the latter sent out to take the place of Jay—in a new commission to form treaties with foreign powers, and his being joined by Mrs. Adams and their only daughter and youngest son, his other two sons being already with him, reconciled him to the idea of remaining abroad. With his family about him, he fixed his residence at Auteuil, near Paris, where he had an interval of comparative leisure and enjoyment. The chief business of the new commission was the negotiation of a treaty with Prussia, advances towards which had first been made to Adams while at the Hague, negotiating the Dutch loan. But

before that treaty was ready for signature, Adams was appointed by congress minister to the court of St. James, where he arrived in May, 1785. The English government, of which the feelings were well represented by those of the king, had neither the magnanimity nor the policy to treat the new American states with generosity, nor hardly with justice. Adams was received with civility, but no commercial arrangements could be made, and his chief employment was that of complaining of the non-execution of the treaty of peace, especially in relation to the non-surrender of the western posts, and in attempting to meet similar complaints, urged not without strong grounds on the part of the British, more particularly as to the obstacles put in the way of the collection of British debts, which were made an excuse for the detention of the western posts. Made sensible in many ways of the aggravation of British feelings towards the new republic, whose condition immediately after the peace was somewhat embarrassing, and not so flattering as it might have been to the advocates and promoters of the revolution, the situation of Adams was rather mortifying than agreeable. Meanwhile he was obliged to pay a new visit to Holland to negotiate a new loan as a means of paying the interest on the Dutch debt. He was also engaged in a correspondence with his fellow commissioner, Mr. Jefferson, then at Paris, on the subject of a treaty with the Barbary powers and the return of the Americans held captive by them. But his most engrossing occupation at this time was the preparation of his "Defence of the American Constitutions," of which the object was the justification of balanced governments and a division of powers, especially the legislative, against the idea of a single assembly and a pure democracy, which had begun to find many ardent advocates, especially on the continent. The greater part, however, of this book—the most voluminous of his publications—consists of summaries of the histories of the Italian republics, by no means essential to the argument, and rather an excrescence. Though it afterwards subjected the author to charges of monarchical and anti-republican tendencies, this book was not without its influence on the adoption of the federal constitution, during the discussion upon which the first volume of it appeared.—Great Britain not having reciprocated the compliment of appointing a minister to the United States, and there being no prospect of his being able to accomplish any of the objects of his mission, Adams had solicited a recall, which was sent out to him in Feb. 1788, accompanied by a resolution of congress conveying the thanks of that body for "the patriotism, perseverance, integrity and diligence" which he had displayed in his ten years' service abroad. Immediately on his arrival home, Mr. Adams was re-appointed a delegate from Massachusetts to the continental congress, but he never took his seat in that body, which was now

just about to expire.—When the new government came to be organized under the newly-adopted federal constitution, as all were agreed to make Washington president, attention was turned to New England for a vice-president. This office was then regarded as of much higher consequence than now. In fact, as the constitution originally stood, the candidates for the presidency and vice-presidency were voted for without any distinct specification, the second office falling to the person who had the second highest vote. Out of sixty-nine electors, John Adams had the votes of thirty-four, and having, next to Washington, the highest number of votes, he was declared vice-president. The other thirty-five votes were scattered upon no less than ten candidates. By virtue of his new office he became president of the senate, a position not very agreeable to his active and leading temperament, better fitted for debate, but one in which the close division in the senate resulting often in a tie between the supporters and the opponents of the new system, often gave him an important voice. In the first congress he gave no less than twenty casting votes, always upon important organic laws, and always in support of Washington's policy. Down to this period, Adams had sympathized in political feeling and sentiment with Jefferson, with whom he had served both in the continental congress and abroad. On the question of the French revolution which now burst upon the world, a difference of opinion arose between them. From the very beginning, Adams, then almost alone, had augured no good from that movement. As the revolution went on and began to break out in excesses, others began to be of this opinion. Adams then gave public expression to some of his ideas on that subject in a series of "Discourses on Davila," furnished to a Philadelphia newspaper and afterwards collected into a volume. Taking the history of nations, particularly Davila's account of the French civil wars, and the general aspects of human society as his text, Adams pointed out as the great springs of human activity, at least in all that related to politics, the love of superiority, the desire of distinction, admiration and applause; nor in his opinion could any government be permanent or secure, which did not provide as well for the reasonable gratification as for the due restraint of this powerful passion. Repudiating that democracy pure and simple then coming into vogue, and of which Jefferson was the advocate, he insisted that a certain mixture of aristocracy and monarchy was necessary to that balance of interests and sentiments without which, as he maintained, free governments could not exist. This work, which reproduced more at length and in a more obnoxious form the fundamental ideas of his "Defence of the American Constitutions," made Adams a great bugbear to the ultra democratic supporters of the principles and policy of the French revolutionists, and at the second presidential election in 1792, they set up as a

candidate against him George Clinton of New York. But Mr. Adams was re-elected by a decided vote. The wise policy of neutrality adopted by Washington, received the hearty concurrence of Adams. While Jefferson left the cabinet to become in nominal retirement the leader of the opposition, Adams continued as vice-president to give Washington's administration the benefit of his casting vote. It was only by this means that a neutrality act was carried through the senate, and that the progress was stopped of certain resolutions which had previously passed in the house of representatives, embodying restrictive measures against Great Britain, intended or at least calculated to counterwork the mission to England on which Mr. Jay had already been sent. Washington being firmly resolved to retire at the close of his second presidential term, the question of the succession now presented itself. Jefferson was the real leader of the opposition, who called themselves republicans, the name democrat being yet in bad odor, and though often imposed as a term of reproach, not yet voluntarily assumed except by a few more ultra partisans. Hamilton was the real leader of the federal party, as the supporters of Washington's administration had christened themselves. But though Hamilton's zeal and energy had made him even while like Jefferson in nominal retirement the leader of the federalists, he could hardly be said to hold the same place with them that Jefferson did with the republicans, whose presidential candidate he was, a position among the federalists which belonged less to Hamilton than to Adams or Jay, whose greater age and longer public service placed them more conspicuously in the public eye. Hamilton, though he had always spoken of Adams as a man of unconquerable intrepidity and incorruptible integrity, and as such had already twice supported him for vice-president, would yet have much preferred Jay. The position of Adams was, however, such as to render his election more probable than that of Jay, and to determine his selection as the candidate of the federalists. Jay, by his negotiation of the famous treaty which bore his name, had for the moment drawn down upon himself a strong feeling of hostility on the part of its numerous and bitter opponents. Adams stood, moreover, as vice-president in the line of promotion, and was more sure of the New England vote, which was absolutely indispensable to the success of either. One of the candidates being taken from the north, it seemed politic to select the other from the south, and the federalist leaders pitched for that purpose upon Thomas Pinckney of South Carolina. Indeed, there were some, and Hamilton was among the number, who secretly wished that Pinckney might receive the larger vote, and so be chosen president over Adams's head, a result, from the likelihood of Pinckney's obtaining more votes than Adams at the south (as he really did), almost sure to happen could the northern federal

electors be persuaded to vote equally for Adams and for Pinckney, a result which Hamilton labored to secure. The fear, however, that Pinckney might be chosen over Adams, led to the withholding from Pinckney of eighteen New England votes, so that the result was not only to make Jefferson vice-president, as having more votes than Pinckney, but also to excite prejudices and suspicions in the mind of Adams against Hamilton, which being reciprocated by him, led speedily to the disruption and final overthrow of the federal party. It had almost happened, such was the equal division of parties, that Jefferson had this time been chosen president, the election of Adams, who had seventy-one votes to Jefferson's sixty-nine, being only secured by two stray votes cast for him, one in Virginia and the other in North Carolina, tributes of revolutionary reminiscences and personal esteem. Chosen by this slender majority, Mr. Adams succeeded to office at a very dangerous and exciting crisis of affairs. The progress of the French revolution had superinduced upon previous party divisions a new and very vehement one. Jefferson's supporters, who sympathized very warmly with the French republic, gave their moral if not their positive support to the claims set up by its rulers, but which Washington had refused to admit, that under the provisions of the French treaty of alliance, the United States were bound to support France against Great Britain, at least in the defence of her West India possessions. The other party, the supporters of Adams, upheld the policy of neutrality adopted by Washington. At the same time that Washington had sent Jay to England to arrange, if possible, the pending difficulties with that country, wishing also to keep on good terms with the French republic, he had recalled Gouverneur Morris, who as minister to France had made himself obnoxious to the now predominant party there, and had appointed James Monroe in his place. Monroe, instead of conforming to his instructions and attempting to reconcile the French to Jay's mission, had given them assurances on the subject quite in contradiction with the treaty as made, both the formation and ratification of which Monroe had done his best to defeat. He had in consequence been recalled by Washington shortly before the close of his term of office, and C. C. Pinckney, a brother of Thomas Pinckney, had been appointed in his place. The French authorities, offended at this change and at the ratification of Jay's treaty in spite of their remonstrances, while they dismissed Monroe with great ovations, refused to receive the new ambassador sent in his place, at the same time issuing decrees and orders highly injurious to American commerce. Almost the first act of Mr. Adams, as president, was to call an extra session of congress to consider what should be done. Not only was a war with France greatly to be dreaded and deprecated on account of her great military and naval power, but still more so on

account of the very formidable party which, among the ultra republicans, she could muster within the states themselves. Under these circumstances, the measure resolved upon by Adams and his cabinet was the appointment of a new and more solemn commission to France, composed of Pinckney and two colleagues, for which purpose the president selected John Marshall of Virginia and Elbridge Gerry of Massachusetts. But instead of receiving and openly treating with those commissioners, Talleyrand, lately an exile in America, but now secretary of foreign affairs to the French directory, entered into an intrigue with them through several unaccredited and unofficial agents, of which the object was to induce them to promise a round bribe to the directors and a large sum of money to the exhausted French treasury by way of purchasing forbearance. As Pinckney and Marshall appeared less pliable than Gerry, Talleyrand finally obliged them to leave, after which he attempted, though still without success, to extract money or promises of it from Gerry alone. The publication of the despatches in which these discreditable intrigues were disclosed (an event on which Talleyrand had not calculated) produced a great excitement, both in Europe and America. Talleyrand attempted to escape by disavowing his agents, and pretending that the American ministers had been imposed upon by adventurers. Gerry left France, and the violation of American commercial and maritime rights was pushed to new extremes. In America the effect of all this was greatly to strengthen for the moment the federal party. The grand jury of the federal circuit court for Pennsylvania set the example of an address to the president, applauding his manly stand for the rights and dignity of the nation. Philadelphia, which under the lead of Mifflin, McKean, and others, had gone over to the opposition, was suddenly converted once more, as during Washington's first term, to the support of the federal government. That city was at that time the headquarters of the American newspaper press. All the hitherto neutral newspapers published there, as well as several others which had more or less decidedly leaned to the opposition, came out now in behalf of Adams. Besides an address from five thousand citizens, the young men got up a separate address of their own. This example was speedily imitated all over the country, and the spirited replies of the president, who was now in his element, served in their turn to blow up and sustain the blaze of patriotic indignation. These addresses, circulated everywhere in the newspapers, were collected at the time in a volume, and they reappear in Adams's works, edited by his grandson, of which they form a characteristic portion. A navy was set on foot, the old continental navy having become extinct, and an army was voted and partly levied, of which Washington accepted the command in chief. Merchant ships were authorized to protect themselves.

The treaty with France was declared to be at an end, and a quasi war with France ensued. It was not, however, the policy of France to drive the United States into the arms of Great Britain. Even before Gerry's departure, Talleyrand had made some advances towards reconciliation, which were afterward renewed by communications opened with Van Murray, the American minister to Holland. The effect of the French outrages and of the progress of the French revolution, had been to create in a part at least of the federal party, the desire for an absolute breach with France, a desire felt by Hamilton, and by three at least out of the four cabinet officers whom Adams had found and had kept in office. In his message to congress announcing the expulsion of Pinckney and Marshall, Adams had declared "that he would never send another minister to France without assurances that he would be received." This was on the 21st of July, 1798. When, therefore, on the 18th of February following, without consulting his cabinet or giving them any intimation of his intentions, he sent into the senate the nomination of Van Murray as minister plenipotentiary to the French republic, this act took the country by surprise, and led to the disorganization and disruption of the federal party. Some previous acts of Adams, such as the appointment of Gerry, which his cabinet officers had striven to prevent, and his disinclination to make Hamilton second in command of the army, till forced into it by Washington, had strengthened the distrust entertained of Adams by Hamilton and many of his friends; and Adams was now accused of seeking, in his attempt to re-open diplomatic intercourse with France, to reconcile his political opponents of the republican party, and to secure by unworthy and impolitic concessions his own re-election as president. The opposition to Murray's nomination so far prevailed that Murray received two colleagues, Ellsworth of Connecticut, and Davie of North Carolina; nor did the president authorize the departure of Ellsworth and Davie, till he had received explicit assurances from Talleyrand that they would be duly received as ministers. On arriving in France they found the directory superseded and Napoleon Bonaparte first consul, with whom they managed to arrange the matters in dispute. But however beneficial to the country, this mission proved very disastrous to Adams personally, and to the political party to which he belonged. He justified its appointment on the ground of assurances conveyed to him through a variety of channels that France desired peace, and he excused himself for not having consulted his cabinet by the fact that he knew what their opinion was without asking them—decidedly hostile, that is, to any such attempt as he had determined to make. The masses of the federalists, fully confident of Adams's patriotism, were well enough disposed to acquiesce in his judgment. But many of the leaders were implacable. The quarrel was fur-

ther aggravated by Adams's dismissal at this time of his cabinet officers and the construction of a new cabinet. The pardon of Fries, convicted of treason for armed resistance in Pennsylvania to the levy of certain direct taxes, was also regarded by many at the time as a piece of misplaced lenity on the part of Adams, dictated, it was said, by a mean desire of popularity in a case in which a severe example was needed.—But Adams will hardly suffer with posterity from his unwillingness to be the first president to sign a death-warrant for treason—a hateful duty which no president of the United States has yet been called on to perform, especially as there was room for grave doubts whether the doings of this person amounted to treason as defined by the constitution of the United States. In this divided condition of the federal party the presidential election came on.—Adams was still too popular with the mass of the party to encourage any attempt to drop him altogether, and the malcontents were reduced to the old expedient of attempting by secret understanding, and arrangement, to reduce his vote in the electoral college below that of C. C. Pinckney, the other of the two candidates voted for by the federalists. The republicans, on the other hand, under the prospect of an arrangement with France, rapidly recovered from the blow inflicted upon them by the violence and mercenary rapacity lately charged upon their French friends, but which they now insisted was a charge without foundation. Taking advantage of the dissatisfaction at the heavy taxes necessarily imposed to meet the expenses of warlike preparations, and especially of the unpopularity of the Alien Law and the Sedition Law—two acts of congress to which the prospect of war had led—they pushed the canvass with great energy; while in Thomas Jefferson and Aaron Burr, they had two leaders unsurpassed for skill in party tactics, and in Burr, at least, one little scrupulous as to the means which he employed. Not only was the whole blame of the Alien and Sedition acts, to which he had merely assented without ever having recommended them, laid on Adams's shoulders, but he was the object of most vehement and bitter attacks, for having surrendered up, under one of the provisions of Jay's treaty, one Thomas Nash, an English sailor, charged with mutiny and murder. Having been recognized and arrested in Charleston, S. C., he had endeavored to save himself by assuming the name and character of Jonathan Robbins, an American citizen, in the light of which assumed character the greater part of Adams's political opponents insisted upon exclusively regarding him, and Adams himself as having basely yielded up an American citizen, who, it was argued, even if guilty of the mutiny alleged, had been justified in it by the fact of having been, as it was alleged, previously pressed into the British naval service. Nor was it against his public acts alone, nor even to his political opponents, that these assaults upon Mr. Adams were confined.—

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With strong feeling and busy imagination, loving both to talk and to write, Adams had been betrayed into many confidences and into free expression of feelings, opinions, and even conjectures and suspicions—a weakness very unsuited to the character of a politician, and which he had frequent occasion to rue. During Washington's first term of office he had thus been led into a confidential correspondence with Tench Coxe, who held at that time the place of assistant secretary of the treasury, and had afterwards been appointed supervisor of the internal revenue, but who since Adams's accession had been dismissed from this place on the charge of being a spy upon the treasury department in the service of the "Aurora," the principal newspaper organ of the opposition, with which party Coxe sympathized, and since his recent dismissal from office had acted. In this state of mind Coxe betrayed a private confidential letter of Adams, which, after having been handed about in manuscript for some time, to the great damage of Adams's with his own party, was finally printed in the "Aurora," of which Coxe had become one of the principal contributors. The purport of this letter, written as long ago as May 1793, was to give countenance to the favorite charge of the opposition, that Washington's cabinet, and of course Adams's, which followed the same policy, was under British influence, and that Thomas Pinckney and his brother C. C. Pinckney, candidates with Adams on the federal presidential ticket, were especially obnoxious to this suspicion. The publication of this letter was followed up by a still more deadly blow in the shape of a pamphlet written and printed and signed by Hamilton, and probably intended by him for private distribution among the federal leaders, but which was made public by Aaron Burr, who had succeeded in possessing himself of some of the proof sheets. This pamphlet had its origin in the same charge against Hamilton of being under British influence, thrown out by Adams in private conversation, and as to which though written to by Hamilton, he had refused to give any explanation, though when a similar request was made by C. C. Pinckney in consequence of the publication of the letter to Coxe, Adams fully exonerated both him and his brother in a published letter from any suspicion which his letter to Coxe might seem calculated to convey.—Hamilton declared in the conclusion of his pamphlet, that as things then stood he did not recommend the withholding from Adams of a single vote. Yet it was the leading object of his pamphlet to show, without denying Adams's patriotism and integrity or even his talents, that he had great and intrinsic defects of character which disqualified him for the place of chief magistrate; and the effect which he desired it to have must have been, to give C. C. Pinckney the presidency, by causing a certain number of votes to be withheld from Adams. The result, however, of the election was to throw out both the federal candidates. Adams received sixty-five votes and Pinckney sixty-four,

while Jefferson and Burr had seventy-three each. In the struggle that followed as between Jefferson and Burr, Adams took neither share nor interest. Immediately on the expiration of his term of office, he left Washington, to which shortly before the seat of government had been removed, without even stopping to be present at the inauguration of Jefferson, against whom he felt a sense of personal wrong, probably of having been deluded by false professions as to Jefferson's views on the presidential chair. This state of feeling on the part of Adams led to a strict non-intercourse for the next thirteen years, though both were much given to letter writing, and had previously, at least till within a short time before, been on terms of friendly correspondence. The only acknowledgment for his twenty-five years' services to the nation, which Mr. Adams carried with him in this unwelcome and mortifying retirement, was the privilege which had been granted to Washington on his withdrawal from the presidency, and after his death to his widow, and bestowed likewise upon all subsequent ex-presidents and their widows, of receiving his letters free of postage for the remainder of his life. Fortunately for Adams, his thrifty habits and love of independence, sustained during his absence from home by the economical and managing talents of his wife, had enabled him to add to the savings from his profession before entering public life, savings from his salaries enough to make up a sufficient property to support him for the rest of his life in a style of decent propriety and solid comfort, in conformity to his ideas, which embraced but moderate sacrifices to show. Almost all his savings he had invested in the farming lands about him. In his vocabulary, property meant land. With all the rapid wealth then being acquired by trade and navigation, he had no confidence in the permanency of any property but land, views in which he was confirmed by the commercial revulsions of which he lived to be a witness. He was the possessor, partly by inheritance and partly by purchase, of his father's farm, including the house in which he had himself been born, but he had transferred his own residence, where he spent the next quarter of a century, to a larger and handsomer dwelling near by, forfeited by one of the refugee Tories of the revolution, and of which he had become the purchaser. In this comfortable home, acquired by himself, he sought consolation for his troubled spirit in the cultivation of his lands, in books, and in the bosom of a family such as falls to the lot of few men, whether in private or public life. Mrs. Adams, to her capacities as a housekeeper, steward, and farm manager, added a brightness and activity of mind and a range of reading, such as fully qualified her to sympathize with her husband in his public as well as his private career. She shared his taste for books, and, as his published letters to her are unsurpassed by any American letters ever yet printed, so hers to

him as well as to others, from which a selection has also been published, show her though with less of nature and more of formality than his letters exhibit, yet worthy of the admiration and respect as well as of the tenderness with which he always regarded her. To affections strong enough to respond to his, a sympathy equal to his highest aspirations, a proud feeling of superiority and an enjoyment of it equal to his own, she added what is not always found in such company, a flexibility sufficient to yield to his stronger will, without disturbance to her serenity or his, and without the least compromise of her own dignity or her husband's respect and deference for her. While she was not ignorant of the foibles of his character, and knew how to avail herself of them when a good purpose was to be served by it, yet her admiration of his abilities, her reliance upon his judgment, her confidence in his goodness, and her pride in his achievements, made her always ready to yield and to conform. His happiness and honor were always her leading object. Nor was this union unblessed with children well calculated to add to its happiness. Mr. Adams indeed had the misfortune to lose by death, just at the moment of his retirement from office, private grief being then added to political disappointment, his second son, Charles. He had grown to manhood, had been married and had settled in New York with flattering prospects, but had died under painful circumstances, which his father speaks of in a contemporary letter as the deepest affliction of his life, leaving a wife and two infant children dependent on him. Nor did Col. Smith, an officer of the revolution, who had been Adams's secretary of legation at London, and who had married his only daughter, prove in all respects such a son-in-law as he could have wished. His pecuniary affairs becoming embarrassed, his father-in-law had provided for him by several public appointments, the last of which was that of surveyor of the port of New York, which position he was allowed to hold till 1807, when he was removed from it in consequence of his implication in Miranda's expedition. Nor did Thomas Boylston Adams, the third son, though a person of accomplishments and talents, fully answer the hopes of his parents. But all these disappointments were more than made good by the oldest son, John Quincy Adams, who subsequently to his recall from the diplomatic service abroad, into which Washington had introduced him and in which his father (urged to it by a letter from Washington) had promoted him, was chosen one of the senators in congress from Massachusetts. All consolations, domestic or otherwise, at Mr. Adams's command, were fully needed. Never did a statesman sink more suddenly, at a time too when his powers of action and inclination for it seemed wholly unimpaired, from a leading position to more absolute political insignificance. His grandson tells us that while the letters addressed to him in the

year prior to March 1, 1801, may be counted by thousands, those of the next year scarcely number a hundred, while he wrote even fewer than he received. Nor was mere neglect the worst of it. He sunk, loaded with the jibes, the sneers, the execrations even of both political parties into which the nation was divided. It is easy to see now that hardly any degree of union or skill on the part of the federalists, a minority from the beginning and only sustained from the first by the name of Washington and the talent and activity of the inferior leaders, could have prevented the ultimate triumph of the other party. But as is usual with contemporaries, the disposition then was to explain every thing by the skill, or luck of individual movements, and a large portion of the most active leaders of the federal party were inclined to hold Adams personally answerable both for the breach in their ranks and for their subsequent overthrow. At the same time, the other party identifying him with all the measures most obnoxious to them, especially the Alien and Sedition Laws, long continued to use his name as a sort of a synonyme for aristocracy, longing after monarchy, bigotry, tyranny, and oppression in general. Especially were they enraged at the passage by his last congress just at the close of his and their term of office of a new judiciary act, or rather at Adams's presuming to fill up with federalists the twenty-three new judicial offices, besides attorneys, marshals, and clerks, created by this act. These nominations, stigmatized as "midnight appointments," were assailed as well as he who made them, by every term of party reproach; nor did the now triumphant republicans rest until, able to reach these appointees in any other way, they had stripped them of their offices by repealing the act. Though Adams, with the exception of Jefferson, was far more of a speculative philosopher than any of his contemporaries in the field of American politics, he was by no means philosopher enough to submit with patience to the obloquy with which he was now visited. In the agony of his heart he sat down to defend himself with his pen, at least before the tribunal of posterity. He had been in the habit of keeping, during intervals of his life, a diary or journal, large and very valuable extracts from which appear in the second and third volumes of his collected works. He now set himself to writing an "Autobiography" and a reply to Hamilton's pamphlet. But though he wrote with great facility and force, neither his eyes which were weak, his hand which trembled so as to make the mechanical labor of writing disagreeable, nor yet his habits or his temperament, were favorable to the labor of correction, condensation, and arrangement; and he presently abandoned both those works, though some selections from the "Autobiography" have been published by his grandson by way of filling gaps in his diary. Eight years after, when time had somewhat healed over these wounds, they broke out

with new malignancy by reason of renewed attacks upon him by the federalists on account of his son John Quincy Adams having abandoned the federal party, and the disposition evinced by the father to sustain the policy of the administration, rather than of the federalists, in the disputes which finally terminated in war with Great Britain. Hitherto the Jeffersonian or democratic party had possessed in Boston as its sole newspaper organ, "The Chronicle," a very violent paper, of which the staple in times past had been abuse of John Adams as an aristocrat and a monarchist, and the author of the Sedition and Alien Laws. To represent and express the sentiments of a new cohort, which with the years 1806 and 1807 came in Massachusetts to the support of Jefferson, under the leadership of John Q. Adams, a new paper was established called the "Boston Patriot," to which both John Q. Adams and his father became contributors. In the earliest numbers of this paper, John Adams printed (and it may be found in the 9th vol. of his collected works) "The inadmissible Principles of the King of England's Proclamation of Oct. 16, 1807, considered," being an examination and refutation of the English doctrine of impressment as applied to British subjects. Very soon, however, he dropped these topics of the day, and reverted to the past. The old charge having been anew brought up against him by some of the federalist papers, of personal motives in setting on foot the mission to France in 1799, he took up that subject in a series of letters to the "Patriot"—also printed in his collected works, vol. ix.—into which he incorporated much of the material collected for his answer to Hamilton. These letters are a valuable continuation to the history of that interesting period, and can hardly fail to be regarded as a complete vindication of Adams's policy and conduct on that occasion;—at least if we allow that the immediate welfare of the nation was to be consulted, rather than any supposed prospective interest of any political party. From this beginning Mr. Adams went on to a history especially of his diplomatic career, into which he introduced many valuable documents in his possession. These publications, interrupted and again commenced from time to time, extended over a space of three years. A portion, embracing perhaps two-thirds of the whole, was collected and published in pamphlets, which, bound together, made an octavo volume, entitled "Correspondence of the late President Adams, originally published in the Boston 'Patriot' in a series of letters." Thus disjointed, and written as parts of it evince, and as his published correspondence of this period more clearly shows, under great exasperation of feeling, and coming forth, too, at a period when the events of the day engrossed all thoughts, and during which the history of the revolution was less generally known and less a subject of public interest than at any time before or since, these letters failed to attract the public attention or to satisfy Mr. Adams's ideal

of a historical vindication of himself. Seeing how, amid the ignorance and carelessness of the times, the true history of the revolution was in danger of total oblivion or of being transformed into a sort of legend, he abandoned his task with expressions to his private correspondents of almost Walpole's contempt for history, and of utter despair of ever having justice done to him. But with the establishment of peace in Europe, and the apparent fulfilment, at least for the moment, of all Mr. Adams's prophecies as to the result of the French revolution, the bitter political obloquy of which he had been the mark,—an obloquy directed against him from two opposite quarters at once—began sensibly to relax, and as those who had been contemporaries with his active life, one after another dropped off, he himself began to fill, while yet alive, the position, in general estimation, of a hero of the past. After Mr. Jefferson's withdrawal from political life, through the agency of Dr. Rush, who had all along remained the personal friend of both, correspondence by letter was renewed between Adams and Jefferson and kept up for the remainder of their lives. About the same time also, Adams opened a correspondence with McKean, his friend and coöperator in revolutionary times, but separated from him in the whirlpool of subsequent politics; and he thus drew out from McKean some valuable historical reminiscences. Mr. Adams indeed gave great attention to the subject of American history. His letters to Mr. Tudor (which led to the publication by that gentleman of the "Life of James Otis") shed great light upon the early history of the revolution in Massachusetts. They contributed not a little to give the first impulse to that study of American history, revolutionary and colonial, which, commencing about that time, has rescued those subjects from the hands of rhetoricians and fabulists, and has produced so many valuable and authentic historical works. In his correspondence, which appears to have gradually increased and extended itself, Mr. Adams loved to recall and to re-explain his theoretical ideas of government—on some points of which he pushed Jefferson rather hard—and which the result of the French revolution so far as then developed seemed to confirm. Another subject in which he continued to feel a great interest was that of theology. He had begun an Arminian, and the more he had read and thought and the older he grew, the freer views he took. Though clinging with tenacity to the religious institutions of New England, it would seem from his correspondence that he had finally curtailed his theology to the ten commandments and the sermon on the mount. Of his views on this point, he gave evidence in his last public act, to which we now approach. Mrs. Adams had died in 1818, but even that shock, severe as it was, did not unsettle the firm grasp of her husband on life, its enjoyments and its duties. When in consequence of the erection of the district of Maine into a separate state, a convention was to meet in 1820 to revise the con-

stitution of Massachusetts, in the framing of which Mr. Adams had taken so leading a part, though in his eighty-sixth year, he was chosen a delegate by his townsmen. Upon his first appearance, with a form yet erect, though tremulous with age, in this convention, which included almost every body in the state of distinguished intelligence or reputation, Mr. Adams was received by the members standing, and with every demonstration of affection and regard, and a series of resolutions was forthwith offered and passed, containing an enumeration and warm acknowledgment of some of his principal public services, and calling upon him to preside. But this, while duly acknowledging the compliment, he declined on the score of his age and infirmities. The same cause also prevented his taking any very active part in the proceedings. Yet he labored to produce a modification of the third article of the Bill of Rights, on the subject of public worship, and its support, an article which, when originally drawing the rest of that instrument, he had passed over to other hands. But the time had not yet come for such changes as he wished. The old puritan feeling was still in too great force to acknowledge the equal rights, political and religious, of others than Christians. Yet, however it might be with his colleagues or his fellow-citizens, Mr. Adams in this movement expressed his own ideas. One of his latest letters, written in 1825 and addressed to Jefferson, is a remarkable protest against the blasphemy laws, so called, of Massachusetts and the rest of the union, as being utterly inconsistent with the rights of free inquiry and private judgment.—It is in the letters of Mr. Adams, of which but a small part have yet been published, that his genius as a writer and thinker, and no less distinctly his character as a man, most clearly appear. Down even to the last year of his protracted life, his letters exhibit a wonderful degree of vitality, energy, acuteness, wit, playfulness, and command of language. As a writer of English, little as he ever troubled himself with revision and correction, and we may add, as a speculative philosopher, he must be placed first among Americans of all the several generations to which he belonged, except only Franklin; and if Franklin excelled him in humor and geniality, he far surpassed Franklin in compass, wit, and vivacity. Indeed, it is only by the recent partial publication of his letters that his gifts in this respect are beginning to become known. The first collection of his private letters, published in his lifetime and much against his will, though not deficient in the characteristics above pointed out, yet as having been written under feelings of great aggravation and in a spirit of great bitterness towards his political opponents, was rather damaging to him. This publication was one of the incidents of his becoming for a third time, in his extreme age, an object of hostility, confined now, however, to a few of the more tenacious of his old federalist opponents,

in consequence of the coalition of all parties in New England to support his son, J. Q. Adams, for the presidency. In the interval from 1804 to 1812, Mr. Cunningham, a maternal relative, had drawn him into a confidential correspondence, in which, still smarting under a sense of injury, he had expressed himself with perfect unreserve and entire freedom as to the chief events of his presidential administration and the character and motives of the parties concerned in them. By a gross breach of confidence, of which, like other impulsive and confiding persons, Mr. Adams had been often the victim, those letters were sold by Cunningham's heir in 1824, while the writer and many of the parties referred to were still alive, and were published as a part of the electioneering machinery against J. Q. Adams. They called out a violent retort from Col. Pickering, who had been secretary of state to Washington and Adams, till dismissed from office by the latter; but though Mr. Jefferson was also severely handled in them, they occasioned no new interruption to the friendly correspondence for some years re-established between him and Adams. Those two leading actors in American politics, at first so coöperative and afterward so hostile, again reunited in friendly intercourse, having outlived almost all their fellow-actors, continued to descend hand in hand to the grave. Adams lived to see his son president and to receive Jefferson's congratulations upon it. By a remarkable coincidence, they both expired on the fiftieth anniversary of that Declaration of Independence in which they had both taken so active a part, Adams, however, being the survivor by a few hours.—Of Adams's personal appearance and domestic character in his old age, his grandson gives the following account: "In figure John Adams was not tall, scarcely exceeding middle height, but of a stout, well-knit frame, denoting vigor and long life, yet as he grew old inclining more and more to corpulence. His head was large and round, with a wide forehead and expanded brows. His eye was mild and benignant, perhaps even humorous when he was free from emotion, but when excited it fully expressed the vehemence of the spirit that stirred within. His presence was grave and imposing on serious occasions, but not unbending. He delighted in social conversation, in which he was sometimes tempted to what he called rhodomontade. But he seldom fatigued those who heard him; for he mixed so much of natural vigor of fancy and illustration with the store of his acquired knowledge, as to keep alive their interest for a long time. His affections were warm, though not habitually demonstrated towards his relatives. His anger, when thoroughly aroused, was for a time extremely violent, but when it subsided it left no trace of malevolence behind. Nobody could see him intimately without admiring the simplicity and truth which shone in his actions, and standing in some awe of the power and energy of his will. It was in these moments

that he impressed those around him with a sense of his greatness. Even the men employed on his farm were in the habit of citing instances, some of which have been remembered down to the present day. At times his vehemence would become so great as to make him overbearing and unjust. This was most apt to happen in cases of pretension and any kind of wrong-doing. Mr. Adams was very impatient of cant, or of opposition to any of his deeply-established convictions. Neither was his indignation at all graduated to the character of the individuals who might happen to excite it. It had little respect of persons, and would hold an illiterate man or a raw boy to as heavy a responsibility for uttering a crude heresy as the strongest thinker or the most profound scholar." The following remarks are added on his general character: "His nature was too susceptible to emotions of sympathy and kindness, for it tempted him to trust more than was prudent in the professions of some who proved unworthy of his confidence. Ambitious in one sense he certainly was, but it was not the mere aspiration for place or power. It was a desire to excel in the minds of men, by the development of high qualities, the love, in short, of an honorable fame that stirred him to exult in the rewards of popular favor. Yet this passion never tempted him to change a course of action or to suppress a serious conviction, to bend to a prevailing error or to disavow one odious truth." This last assertion involves some controverted points of history, yet this at least must be granted, that it may be made with far more plausibility of Mr. Adams than of the greater portion of political men. The pecuniary independence which previous to his retirement Mr. Adams had secured by a judicious adaptation of his expenditures to his income, more fortunate than Mr. Jefferson, he maintained till the end of his life. Although he had maintained a large family, including grandchildren and great-grandchildren dependent upon him, he yet died in the possession of a landed estate of a hundred thousand dollars in value.

ADAMS, JOHN, the assumed name of an English sailor, born 1764, died at Pitcairn's island, May 5, 1829. He was one of the most determined mutineers of the British ship *Bounty*, in 1789. After mutual massacres between the Otaheitan and the white men on Pitcairn's island in consequence of quarrels about the Otaheitan women, and a disorderly life on the part of two of the white survivors, John Adams and another mutineer, named Young, alone remained of the original nine who landed on the island. These two, reflecting upon their past life, became very religious. Young possessed a Bible and a prayer book of the church of England. They reared their little colony in the precepts of Christianity and the tenets of the church of England. On the death of Young, Adams remained the patriarch of the colony. He read divine service in the

chapel, and performed the marriage service. In 1825, on the arrival of Captain Beechey, the old man came on board ship and doffed his hat and smoothed his hair in old English sailor style. He was much afraid on sight of the king's uniform that he would be taken back to England and punished for his crime of mutiny. Adams was looked upon as the father of the whole colony, numbering then seventy souls. His real name is supposed to have been Alexander Smith.

ADAMS, JOHN COUCH, a Fellow of Pembroke college, Cambridge, England, who shares with Leverrier the honor of having calculated the place of the planet Neptune, before it had been recognized by sight. Born of humble parentage in Cornwall, he early showed great powers, and in 1841, while in St. John's college, and just entering the age of manhood, made his first computation of Neptune's place. In 1844-46, he renewed his calculations, and communicated the results to Professors Challis and Airy. Unfortunately for his fame he did not publish them, and therefore Leverrier, who soon after attained and published similar results, has reaped the larger share of glory. The calculations of both mathematicians were formed on the motions of the planet Uranus, which was drawn aside from its expected course by the attraction of Neptune.

ADAMS, JOHN QUINCY, eldest son of President John Adams, was born in Braintree, July 11, 1767, died at Washington, Feb. 28, 1848. His middle name, Quincy, that of his maternal great-grandfather, signalized his connection by blood with a family of higher colonial position than his father's. Yet even the Quincys were not to be reckoned among the original patricians of Massachusetts, since the name of Edmund Quincy, their forefather, lacks in the lists of Massachusetts pioneers, no less than the name of the progenitor of the Adamses, the prefix of Mr., given to all those recognized as holding a certain position. John Adams having been appointed minister to France, as related in a previous article, took with him as companion, his son John Quincy, then in his eleventh year. The voyage from Boston to Bordeaux was tempestuous; the travel by land from Bordeaux to Paris was rapid and fatiguing; but the young Adams, as appears from his father's published diary, conducted and sustained himself through both voyage and travels, and also during their residence at Paris, to his father's entire satisfaction. Placed at a school near Paris, John Quincy Adams made rapid progress both in the French language and in his general studies. His health was perfect, and so his father wrote to his mother, he attracted general attention wherever he went, by his vigor of body, his vivacity of mind, and his constant good humor. After a stay in France of near a year and a half—several months of which were spent at Nantes waiting for a passage home—John Quincy Adams came back with his father in a French frigate. While at sea he taught Eng-

lish to his fellow-passengers, the French ambassador to the United States, De la Luzerne, and his secretary, M. Marbois. The following is an extract from his father's diary, under date of June 20th, 1779: "The Chevalier de la Luzerne and M. Marbois are in raptures with my son. They get him to teach them the language. I found this morning the ambassador seated on the cushion in our stateroom, M. Marbois in his cot, at his left hand, and my son stretched out in his at his right, the ambassador reading out loud in Blackstone's 'Discourse,' at his entrance on his professorship of the common law at the University, and my son correcting the pronunciation of every word and syllable and letter. The ambassador said he was astonished at my son's knowledge; that he was a master of his own language like a professor. M. Marbois said, 'Your son teaches us more than you; he has *point de grace, point d'éloges*. He shows us no mercy, and makes us no compliments. We must have Mr. John.'" Character is very early developed, and John Q. Adams retained much of this same style of teaching to the end of his life. After remaining at home three months and a half, John Q. Adams, now in his thirteenth year, sailed again in the same French frigate, again as his father's companion on his second diplomatic mission to Europe. Arriving at Paris in February 1780, the young Adams was again placed at school, where he remained till August. He then went with his father to Holland, when, after some months' tuition at a school in Amsterdam, he was sent, about the end of the year, to the university of Leyden. His father's secretary of legation, Francis Dana (afterwards chief justice of Massachusetts), having been appointed minister to Russia, he took with him as his private secretary, John Q. Adams, then in his fifteenth year. Having discharged the duties of this position for fourteen months to Dana's entire satisfaction, Dana not having succeeded in getting recognized as minister, young Adams left St. Petersburg, and travelling back alone, returned leisurely through Sweden and Denmark, and by Hamburg and Bremen to the Hague, where he resumed his studies. In October, 1788, the treaty of peace having been signed, John Q. Adams attended his father on his first visit to England. Returning with him, he spent the year 1784 in Paris, where the whole family was now collected. His father having been appointed minister to Great Britain, he accompanied the family to London, but soon after, with a view to the completion of his education, returned home to Massachusetts. In 1786 he entered the junior class at Harvard college. He graduated in 1788, and immediately after—law schools being then unknown—entered the office of Theophilus Parsons, a leading practitioner, then resident at Newburyport, afterward well-known as chief justice of Massachusetts. Here he remained for three years. In 1791 he was admitted to the bar, when he opened a law office in Boston, and in the course of four years he

gradually attained practice enough to pay his expenses. He did not, however, confine himself entirely to the law. A series of articles which he published in the "Boston Centinel," with the signature of *Publicola*—a reply to some portions of Thomas Paine's "Rights of Man"—attracted a good deal of attention not only at home but in England, where these papers were republished and ascribed to his father. In another series of articles in the same journal, signed *Marcellus*, published in 1793, he sustained Washington's policy of neutrality. In a third series, signed *Columbus*, published the same year, he reviewed the conduct of Genet, the French ambassador, in relation to the same subject. These writings drew attention towards him, and in May, 1794, Washington appointed him minister to the Hague. Upon his arrival there he found things in such confusion, owing to the French invasion, that after a few months' residence he thought of returning; but, by the remonstrances of Washington, who predicted for him a distinguished diplomatic career, he was induced to remain. In 1795 he had occasion to visit London to transact some business with Thomas Pinckney, who, after Mr. Jay's departure, had resumed the embassy at that court. The American consul at London was Joshua Johnson, of Maryland (brother of Thomas Johnson, one of the signers of the Declaration of Independence, and a judge of the United States supreme court). Mr. Joshua Johnson had formerly been a merchant at Nantes, where, in 1779, the Adamsses had made his acquaintance. He had by this time a grown up daughter, with whom young Adams now formed an intimacy, which resulted on July 27, 1797, in marriage. Previous to this event, and shortly before the close of Washington's administration, John Q. Adams had been appointed minister to Portugal; but his father, on becoming president, changed his destination to Berlin. In thus promoting his own son, John Adams acted by the written advice of Washington, who expressed his decided opinion that young Adams was the ablest person in the American diplomatic service, and that merited promotion ought not to be withheld from him merely because he was the president's son. He arrived at Berlin shortly after his marriage, in the autumn of 1797. In 1798 he received an additional commission to negotiate a treaty of commerce with Sweden. While residing at Berlin, with a view to perfecting himself in the German language, he made a translation into English of Wieland's "Oberon," and would have published it, but for the appearance, about that time, of a translation by Sotheby. In 1800 he travelled through Silesia, of which tour he wrote an account in a series of letters to his brother, which were published, though without the writer's knowledge, in the "Portfolio," a weekly paper at Philadelphia. These letters were collected and published in a volume in London, and being translated into French and German, had a wide circulation.

Silesia reminded him strongly of New England. On the accession of Mr. Jefferson to the presidency, John Q. Adams was recalled; but he had previously succeeded in negotiating a treaty of commerce with Prussia. Returning to Boston he again opened a law office there. In 1802 he was elected from Suffolk county (which included Boston) to the Massachusetts senate, and the next year was chosen by the legislature a senator in congress from Massachusetts. He owed this position to the federal party of Massachusetts, and for four years he continued to sustain their views; but on the question of the embargo, recommended by Jefferson, he separated from them. The Massachusetts election in the preceding spring had resulted in the success of the Jeffersonian party, who elected their candidates for governor and lieutenant-governor, and a majority in both branches of the legislature. At the time when the embargo was proposed by the president to Congress, it seemed probable that the question of Adams's re-election to the senate would have to be decided by a legislature favorable to the views of the national administration; and the support which Adams gave to that measure, was charged by the federalists to the hope of securing his re-election and the favor of a party whose predominance seemed at length established, not merely in the nation, but in Massachusetts also. This course, on his part, led to a warm controversy between him and his colleague in the senate, Timothy Pickering, who now made the same charges of treacherous selfishness against the son which he had formerly brought against the father. Pickering addressed a letter to Governor Sullivan of Massachusetts, in which he forcibly stated his objections to the embargo, which he represented as the first step towards a war with Great Britain, a step into which the administration had been led, as he maintained, by French threats, or French seduction. This letter Pickering requested the governor to lay before the legislature, which Sullivan refused to do, on the ground that it was "seditious and disorganizing." It found its way, however, into the newspapers, and Adams replied to it through the same medium. In this reply he expressed his conviction that the whole of the difficulties in which the United States were involved on the question of neutral rights, including the issue of Bonaparte's Berlin and Milan decrees, had originated in the unwarrantable maritime pretensions of Great Britain. He even went so far as to represent the late British orders in council, issued nominally in retaliation for the Berlin decree, as a first step on the part of Great Britain towards bringing back the United States to colonial subjection. Giving emphatic expression to suspicions and an antipathy which as to the Hamiltonian or Essex junto section of the federalists, he had imbibed from his father, he broadly hinted that Pickering and his special party friends were quite ready to side with and aid Great Britain in the

new enterprise which he ascribed to her, of re-subjecting America. Although Sullivan had been re-elected governor, the embargo had operated to give the federalists a small majority in both branches of the Massachusetts legislature; and when the question of the choice of senator came up, Adams was dropped, and Lloyd, a Boston merchant, chosen in his place. Adams thereupon declined to sit for the remaining short session of his term, resigned his senatorship, and retired to private life. He had previously, however, secured in addition to his practice as a lawyer, a new resource and employment, in the post of professor of rhetoric and belles lettres at Harvard college. He entered upon this professorship in 1806, upon condition, however, of not being obliged to reside at Cambridge, and for three years following discharged the duties of it, delivering lectures, the first, it is said, ever read in any American college, and conducting exercises in declamation. His lectures, which were printed in 1810, once possessed a considerable reputation, but are now entirely neglected. The winter subsequent to his resignation he visited Washington, nominally for the purpose of attending the supreme court. During this visit he sought and obtained a confidential interview with Jefferson, in which he distinctly brought against a portion of the federal leaders the charge of a treasonable design of dissolving the union, and forming a separate northern confederacy. The same charge, thus privately made, he not long after repeated in print, in a review of the writings of Fisher Ames, which he published in numbers in the "Boston Patriot." Such was the origin of a charge which for the next ten or fifteen years was not without a decided influence upon the administration of the government, and which, penetrating deeply into the popular mind, made the leading statesmen of New England objects at once of dread and hatred, deprived New England, for a considerable period, of its natural weight in public affairs, and was not without a decisive influence in curtailing to a single term the presidential office, to which John Q. Adams himself afterwards attained. That he was sincere in bringing this charge there is little room for doubt. The proof, however, which he presented at the time or afterward of the truth of this plot, was sufficiently slender. It was said to have originated with a few federal members of congress, in consequence of the annexation of Louisiana—a measure which Adams had himself opposed, being one of the six senators who voted against it—and the threatened destruction, by the addition of so much new western and southern territory, of the political influence of the northern and eastern states. These dissatisfied members of congress, so Adams alleged, had proposed to have a meeting at Boston, at which Hamilton was to have been present. It was admitted that Hamilton disapproved of the scheme, and yet his reasons for accepting Burr's challenge were cited as proof that he anticipated a civil

war and the being called upon to take a leading part in it. Such seems to have been about the whole of this alleged plot, carefully concealed, as Adams admitted, from the great body of the federalists, and unknown even to the greater part of their leaders, including one so conspicuous as Ames. We shall have occasion, at a subsequent period of Mr. Adams's life, to allude again to this subject. It should be added now, however, that this revelation was among the reasons by which Adams pressed Jefferson to consent to the repeal of the embargo, for which he had himself voted, but which had provoked in all the maritime parts of the country, and especially in New England, a very violent hostility, and which could not be persisted in, as Adams thought, without leading to open and violent resistance, and so affording opportunity to the plotters against the integrity of the union. Immediately after Madison's accession to the presidency, he nominated Mr. Adams as minister to Russia. Since the time that Adams, while yet a boy, had visited St. Petersburg as private secretary to an unrecognized minister, the United States had had no ambassador at that court. The senate, not yet satisfied of the expediency of opening diplomatic relations in that quarter, though the same thing had been recommended by Jefferson, refused to confirm the nomination. However, a few months after, the nomination was renewed, and with better success. John Adams, who did not like being thus separated from his son, saw in this appointment only a sort of political banishment intended on the part of the Virginia politicians, to remove a dreaded competitor out of the way. Yet in fact, by removing John Q. Adams from the immediate theatre of contention at home, it contributed not a little to his subsequent political promotion. He was himself, as we may judge, well satisfied to escape from the political commotion which he had raised; for when, after various unsuccessful attempts to fill a vacancy on the supreme bench of the United States, he was nominated and confirmed as a judge (for the New England circuit), in spite of the wishes of his father he declined the nomination, preferring to remain as ambassador at St. Petersburg, where he was now established with his family. If, as might be judged from the tenor of his letters, he declined a seat on the bench in part at least on the score of not possessing a judicial mind, he exhibited in so doing a commendable degree of self-knowledge. He was by nature an advocate and a partisan, not a judge. Mr. Adams was well received in Russia. His official duties were not very arduous. Part of his leisure he employed in writing a series of "Letters," since published, addressed to his sons, on the "Bible and its Teachings," a pious work, but not otherwise of particular value or merit. The disputes and collisions between Great Britain and the United States having finally terminated in war, through the influence of Mr. Adams the emperor of Russia was induced to offer himself as mediator,

and in July, 1813, Adams was joined by Mr. Bayard, and afterwards by Mr. Gallatin, those gentlemen having been appointed in conjunction with himself to negotiate a peace. Great Britain, however, refused to treat under the mediation of Russia. She proposed instead an independent negotiation at London or Gottenburg, for which Ghent was afterwards substituted. This proposition having been accepted on the part of the United States government, Mr. Adams arrived at Ghent in June, 1814, and after a protracted negotiation of six months, in which Jonathan Russell and Henry Clay were associated, peace was finally concluded Dec. 24, 1814. No attempt whatever was made to limit the maritime pretensions of Great Britain, in resistance to which the war had originated, and against which Mr. Adams, in joining the administration party, had so decidedly pronounced. The skill and eloquence of the American commissioners found ample scope in warding off the pretensions of the British to portions of territory occupied by her, or at least to act as protector to the Indian tribes within the limits of the United States. Some attempt was also made to limit our fishing rights, and Mr. Adams was now instrumental, as his father had been before him, in maintaining unimpaired our enjoyment of the ocean fisheries. Previous to proceeding to London to execute a new commission to negotiate in conjunction with Clay and Gallatin a treaty of commerce, Adams visited Paris where he witnessed the return of Napoleon from Elba and the brief empire of the Hundred Days. Here his family joined him after a long and perilous journey from St. Petersburg, and on the 25th of May he joined Clay and Gallatin in London; in conjunction with whom, on July 13, 1815, he signed a commercial convention with Great Britain. This business finished, Adams still remained at London as resident minister. Upon the accession of Monroe to the presidency he offered Mr. Adams the post of secretary of state, to fill which he returned home, after an absence of eight years. The re-establishment of peace in Europe having removed former grounds of contention, a political lull had succeeded, and a new organization of parties now began to take place, especially on the subjects of protection to American manufactures and expenditures from the United States treasury for internal improvements. There still remained, however, to be disposed of, some questions of moment more immediately connected with Mr. Adams's position as secretary of state. General Jackson having been consulted on the subject by Monroe, had heartily approved of the appointment of Mr. Adams to that department. Adams no less warmly supported in the cabinet against Mr. Calhoun's proposition of censure, the conduct of General Jackson in invading Florida, hanging Arbuthnot and Ambrister, and taking military possession of St. Marks and Pensacola. Those proceedings he also sustained with no less zeal in his diplomatic correspondence with

the Spanish minister—an important correspondence having reference to the boundaries of Florida and Louisiana, and the claims of America on Spain for commercial depredations. Though as a senator, Adams had voted against the Louisiana treaty, on the ground that the federal constitution gave no power to acquire territory, he now as secretary of state pushed American claims under that treaty to the extremest lengths, insisting that this cession included not merely Florida to the Perdido, but Texas to the Rio Grande. Finally, in consideration of the cession of Florida, the United States agreeing to pay 5 millions of dollars for it, to be applied, however, to the extinction of American mercantile claims against Spain, Adams compromised matters by agreeing to the Sabine, the Red river, the upper Arkansas, the crest of the Rocky Mountains, and the parallel of 42° N. lat. as the boundary of Louisiana, and upon this basis a treaty was arranged. This treaty was his principal achievement as secretary of state. After some hesitation, Mr. Adams finally yielded to the policy warmly urged by Henry Clay, of recognizing the independence of the late Spanish American colonies. An elaborate report which he made in his official capacity on weights and measures, secured him the credit of extensive scientific acquirements. Towards the close of Monroe's first term, came up the great question of the admission of Missouri as a slave state, and the extension of slavery or its prohibition throughout the unsettled territory north and west of Missouri. The Missouri compromise having at length, after violent agitations at Washington and throughout the country, received the sanction of congress, Monroe, upon being called upon to sign the bill, submitted two questions to his cabinet: First, had congress the constitutional power to prohibit slavery in a territory? and second, was the term "forever" used in the prohibition clause of the Missouri bill, to be understood as referring only to the territorial condition of the district embraced in it, or must it be understood to extend to such states as might be erected out of it? These questions grew out of the circumstance, that the southern members of congress had denied any power in congress to prohibit slavery in a state—and therefore any right to refuse to admit Missouri into the union on the ground that her constitution established slavery. Those of them who supported the compromise, admitted, however, a power of imposing conditions on territories, as necessarily implied in the power to erect them. On the first of these questions all the cabinet declared themselves in the affirmative. As to the second question, Adams thought that the term "forever" must be understood to mean forever, and that the prohibition of slavery instead of ceasing with the territorial condition of the district, would under the act of congress extend to any states that might at any time be erected out of it. The other members of the cabinet, including Thompson of New York (ex-

cept Adams, the only other northern man in it, and soon after made judge of the supreme federal court), were all of opinion that the "forever" in question was only a territorial forever, and that it did not and would not operate to prevent any states that might be organized out of this territory from establishing or prohibiting slavery as they chose. But to prevent this delicate point from being mooted, and to give to the cabinet an appearance of unanimity, at Mr. Calhoun's suggestion the second question was modified so as to read—"Is the proviso as it stands in the bill, constitutional?" To this question all the members returned the brief answer "yes," and on the strength of their apparently unanimous opinion (ordered to be deposited in the archives of the state, whence, like some other valuable historical papers, it has since disappeared), Monroe signed the bill. We owe this piece of secret history to an extract which has been published from Mr. Adams's diary, from which it also appears that he still strongly entertained the same sentiment of opposition to southern ideas, institutions, and predominancy, which had led him to vote against the annexation of Louisiana. But the time was not yet come for the open avowal of his opinions or for acting upon them. Least of all were the present crisis and Adams's present position favorable to such a course. No sooner had Monroe entered upon his second term of office, than the question of who should be his successor began to be vehemently agitated. Of the five members of his cabinet, no less than three, Adams, Crawford, and Calhoun, were brought forward as candidates, as were also, outside the cabinet, General Jackson and Henry Clay. Crawford obtained the congressional caucus nomination, according to the usage which then prevailed; but this nomination had no weight with the partisans of the other candidates. To support Adams the federal party of Massachusetts—the only state in which that party could be said to maintain an organized existence, and even there it had lately lost the control of the state government—amalgamated with the democratic party of that state, and the same union took place throughout New England and partially so in New York, New Jersey, Delaware and Maryland. All the federalists, however, did not come into this arrangement. Some of the more persistent among them refused to support Adams. The aged Timothy Pickens, his former senatorial colleague, made a violent attack upon him in a printed pamphlet, founded on his former separation from the federal party. As a general thing, however the greater part of the old federalists throughout the country gave in their adhesion to Adams—a circumstance urged by his opponents as going to show that he was still but a federalist in a democratic disguise, and not entitled to the support of the democratic party. From the earliest history of the United States as an independent nation, Virginia and New England ideas had contended for predominancy and control. Not-

withstanding his former abandonment of New England at the time of the embargo, in the present contest Mr. Adams represented the New England which was in fact synonymous with the federal idea. Of course he suffered greatly from that bitter dislike of New England, which in the preceding quarter of a century had been laboriously and assiduously instilled into the people not merely of the southern but of the western states, and which he had himself, as we have seen, contributed to aggravate. The election resulted in giving to Adams all the votes of New England; twenty-six votes from New York, one from Delaware, three from Maryland, two from Louisiana, and one from Illinois, eighty-four in all, while Jackson had ninety-nine—those of Pennsylvania, New Jersey, Indiana, and two of the three votes of Illinois among the number.—Crawford had forty-one, and Clay had thirty-seven, including the votes of Kentucky and Ohio.—Calhoun, who had previously withdrawn from the contest, was chosen vice-president almost unanimously. There being no choice by the people the election came into the house, where, by the influence of Clay, Adams was chosen at the first ballot—thirteen states voting for him, seven for Jackson, and four for Crawford. Jefferson, in a letter a few days before to John Adams, had characterized the decision between John Quincy Adams and Jackson—the only two candidates really before the house—as involving the question whether he and his correspondent were to end their days "under a civil or military government." It is probable that Jefferson's favorite candidate had been Crawford, who received the vote of Virginia, but by nobody had Jackson been more vehemently opposed as the backwoods uncivilized and military candidate, than by the supporters of Crawford, who had painted in very strong colors the probable barbarizing consequences of Jackson's election. Crawford himself, in a subsequent letter to Clay, most decidedly approved of Clay's preference of Adams to Jackson. No sooner, however, had Adams entered the presidential chair with Clay as his secretary of state, than a coalition was formed between the late supporters of Crawford and Jackson, with the understanding that Jackson should be their candidate, and with the resolute determination to break down the administration of Mr. Adams, and to prevent his re-election. For this purpose no effort was spared. The Crawford presses, which had abused Jackson, now began to sing praises to him. Adams considering himself the successor to Monroe in the regular democratic line, and wishing to impress that fact on the public, made few or no removals from office, and when vacancies occurred hardly ventured to appoint a single federalist—a proscription under which that party had labored now for a quarter of a century, and to which Adams's own charges and denunciations had in fact contributed. It was well known that as to this subject, Jackson entertained very liberal views; in fact, that he had ad-

vised Monroe upon his accession to a much more liberal course in appointing federalists to office than Monroe had seen fit to adopt. Hence, especially in all those states where the opposition was predominant, many enterprising young federalists mustered to the side of Jackson, some of them even joining loudly in those charges of secret federalism against Adams, and in appeals to the long cherished prejudices against New England, which were prominent weapons in the party warfare of that day. The new party assuming to themselves the title of democrats, refused to accord it to Adams and his supporters, to many of whom, indeed, it was not very agreeable, and who invented for themselves the new name of "National Republicans." Some of these young federalists, transformed so suddenly into democrats and Jackson men, hit upon another party expedient no less effective. Even before the election they had gone to Jackson with the story of a secret bargain between Adams and Clay, to result in Adams's election and Clay's appointment as secretary of state, and the charge of bargain and corruption thus originated and taken up even by Jackson himself, was loudly re-echoed after the election to the damage of both Clay and Adams. The new administration endeavored to strengthen itself by assuming the championship of internal improvements, which had hitherto been Calhoun's specialty, and of protection to domestic industry, of which Clay had been a leading advocate, and which just before Adams's accession had carried the enactment of the tariff of 1824.—Although the tobacco and cotton growing states were strongly opposed to protection, yet that idea was at this time far too popular in the middle states to be repudiated. The supporters of General Jackson, at least in the northern and middle states, represented him and themselves as in favor of a "moderate" and "judicious" tariff, as opposed to the high tariff policy which they ascribed to Adams and Clay. In this position of parties, all the free traders north and south joined the opposition, including, for the most part, the powerful navigating interest of New England and the importing interest of New York, thus carrying over to that side a large additional section of the old federal party.—Upon the internal improvement question, the opposition, notwithstanding that Calhoun was one of their principal leaders, took more decisive ground, going so far as to deny, as Crawford formerly had done in opposition to Calhoun, the constitutional authority of Congress to vote money for that purpose. As additional means of affecting popular opinion, loud charges of extravagance were brought against the government, whose expenses, exclusive of the public debt, scarcely amounted to thirteen millions a year (hardly a quarter of what is now spent), and retrenchment and reform were loudly promised in case the opposition should triumph.—This was for the people. To the politicians another more inviting lure was held out. From Adams's peculiar position in relation to those

whom he found in office, he had, as we have seen, nothing in that way to promise his supporters. He did not even dare to remove those office-holders apparently hostile to him, while the opposition held out the prospect, in case of their triumph, of a general sweep of the present office-holders—at least of such as were not strongly on their side—and the distribution of their places as spoils to the victors—rewards, that is, for electioneering services. The debates of Congress at this period were largely made up of electioneering harangues; and to give free scope to the remarks of John Randolph and other opposition senators, Mr. Calhoun started and acted upon the idea that as presiding officer of the senate he had no authority to call any senator to order. It was in vain to struggle against this combination, which, in the latter part of Mr. Adams's presidential term, had a majority against him in both houses of congress. Nor was his administration any more fortunate in its exterior relations. The congress of Panama, from which much had been hoped in the way of placing the United States at the head of a great American confederacy, was substantially defeated, as to any participation of the United States in it, by the delays induced by the opposition, while an unlucky quarrel with Great Britain as to trade with the West Indies ended in the entire suspension of that traffic. It appears, by certain recently-published diplomatic correspondence, that an attempt was also made by Clay and Adams to purchase Cuba—a measure which might have proved very acceptable at the south, but Spain totally refused to listen to their offers. As against the solid combination of the opposition, supported by the name and prestige of the old democratic party, the game had been a desperate one from the beginning. In the eastern states Mr. Adams was pretty well able to hold his own, and in those states, at the second election, he obtained about as many votes as before. But Kentucky and Ohio, in which the popular feeling against New England was greatly embittered, altogether failed him. Mr. Clay was unable to help him to a single vote. In this desperate emergency, finding his office slipping from under him, Mr. Adams made a most unfortunate effort to retrieve his falling fortunes, in the shape of a letter addressed to the electors of Virginia, in which he claimed their votes on the ground of his services twenty years before in exposing and frustrating the alleged New England plot which we have already referred to, to dissolve the Union. This ill-judged letter, while it did not gain him a single vote, left him to retire to Quincy—where he had now become possessor of his deceased father's estate, largely augmented by his own savings—with a new personal and political quarrel on his hands, and with hard feelings and personal antipathies against him, which for a long time had been in abeyance, thus unseasonably revived by himself. Shortly after his return to Massachusetts a correspondence ensued between

him and a number of the old federalists and their representatives, which did not tend to mollify matters. No new light was thrown on the alleged plot, though Mr. Adams is understood to have written a book or pamphlet on the subject, which however he refrained from publishing, on the judgment of some friends to whom he submitted it, that it would not better his case. After having successfully kept the political seas for nearly forty years, and that in very stormy times, Mr. Adams was at last stranded, as it seemed, high and dry on a political lee-shore. He addressed himself, for the moment, to arranging the papers and preparing a life of his father; but the fragment of this work which his son has incorporated in his life of his grandfather, does not make us regret that he soon abandoned it. He had been a versifier from his youth, and he now published a rhymed performance of some length, founded on the story of the conquest of Ireland; but this palpably was not a field in which he was likely to gather laurels. Though Mr. Adams had now reached an age at which many politicians have voluntarily retired, he had in his temperament too much of innate vigor and indefatigable activity, and too much of the stormy petrel in his character, to make him willing to leave that political vocation to which, both by nature and habit, he was so specially adapted. In fact, the great work of his life remained to be performed. The anti-masonic excitement consequent on the disappearance and alleged murder of William Morgan, had, about this time, introduced a new element into the politics of western New York, whence it had spread into Vermont, Massachusetts, Pennsylvania, and in a less degree into other states. This excitement had taken a strong hold of the congressional district in which Mr. Adams lived, and he himself exhibited a deep interest in it. He signaled his zeal against secret societies by exerting himself to procure the abolition of some pass-words and secret signs which formed a part of the ceremonial of the Phi Beta Kappa, a literary society of which branches existed in Harvard and other colleges; and under these circumstances the anti-masons of his district brought him forward as a candidate for congress. He accepted the nomination and was chosen without opposition, and continued to represent the district till his death, seventeen years after. The mass of those who had been his supporters for the presidency, had looked, since his failure of a re-election, to Mr. Clay as their head and leader. Mr. Adams entered congress in December, 1831, without party or followers, but in a more independent position than he had ever yet occupied. Shortly after his return to public life he was nominated by the anti-masons as their candidate for governor of Massachusetts. The politics of Massachusetts were at that time in a very disorganized state, and a strong effort was made by the Everetts and other personal friends of Mr. Adams, and was favored by Mr. Webster, to induce the so-called national re-

publican party to accept the nomination of Mr. Adams thus made. But for the feeling against him which his Virginia letter had aroused among the old federalists, this effort would probably have been successful. As it was, the national republicans as well as the supporters of the administration, each nominated a separate candidate for governor. There was no choice by the people, but as the national republicans carried a majority in the legislature, their candidate (the late governor and senator, Davis) was elected over Adams's head—a disappointment which tended to place him in a still more independent political position. He gave, however, a general support, in congress, to that party which had sustained his own administration. He strongly opposed the nullifiers; yet as chairman of the committee on manufactures, he strove to discover some middle ground on which the vexed question of the tariff might be satisfactorily settled. On the question of the removal of the deposits he went with the party which now began to take the name of whigs—including in that denomination not merely the old national republicans, but a certain number, especially at the south, of deserters from the Jackson ranks. In the affair of the dispute with France in 1835, about the delay in paying the indemnity, which had been stipulated by treaty, for maritime spoliations in Bonaparte's time, true to his pugnacious temperament, he supported Jackson's proposition for issuing letters of marque and reprisal, no less energetically than he had formerly supported Jefferson's embargo, and by a very singular coincidence, this course, like that, cost him a seat in the United States senate. At this very time the Massachusetts legislature were employed in filling an approaching vacancy in that body; Mr. Adams's friends had brought him forward as a candidate, and he was more than once chosen by the state senate. The house, however, did not concur, but proposed Governor Davis instead. This question was still pending, with a fair prospect of a decision in Adams's favor, when his speech in favor of reprisals on France, which did not correspond with the sentiment of Massachusetts, caused him to be abandoned by his supporters in the state senate, and led to the election, over his head, of Davis, who had beaten him as governor, as senator also. Thus again forcibly cut loose from all party connections, Mr. Adams was left at liberty to follow the bent of his own daring and energetic spirit. The abolitionists had now begun to appear on the political stage, but in the prevailing anxiety to avoid giving offence to the south, reference was seldom made to them on the floor of congress except with disclaimers of sympathy, if not with expressions of detestation. The measure principally employed by the abolitionists at that time was the presentation of petitions for the abolition of slavery in the District of Columbia and the territories. To get rid of this importunity, congress had adopted rules which were maintain-

ed by Mr. Adams to be inconsistent with the right of petition itself. In this emergency, he stepped forward as the champion and guardian of that right. Though he had taken the position of being opposed to the legislation asked for by the abolitionists, as not seasonable, or expedient for the moment, he still insisted on their right to be heard. Upon this point he fought for years a battle which drew all eyes upon him as the representative of a principle which found in him an unflinching advocate and indefatigable champion. This new and eminent position was one which Mr. Adams was perfectly adapted to fill. With an iron constitution, strengthened by an active and abstemious life, there was, during his long term of service in congress, not a single member who equalled him, notwithstanding his great age, in capacity for application and powers of endurance, certainly not one whose attendance upon the business of the house was so exact and unremitting. In acquired knowledge, whether by books or personal experience, he far surpassed any of his fellow-members, and what was of greater consequence, his stores of knowledge were always at hand and ready for use. Though his voice was weak, in consequence of which the members usually crowded about him when he spoke, he never became exhausted with fatigue; and though his manner was not pleasing and had little variety, yet the peculiar views which he took, and the copiousness and novelty of his illustrations, always held his audience in profound attention. Though he had the appearance often, especially to strangers, of speaking in a passion, at least in ill humor, and of laboring under a degree of excitement, he was in fact perfectly self-possessed, and in the midst of the storms and tumults which he raised about him, never lost in the slightest degree his own self-control. We have no space to dwell on the history of his congressional career, which would fill a volume, but we must not omit to indicate his defeat, in Feb. 1837, of his opponents on the question of a censure upon him for sending up to the speaker a petition purporting to come from slaves, as one of the most signal instances of his triumph. His undaunted bearing, his courage and determination, which no threats and no tumults could suppress, soon drew around him as a moral aid and support, a body of external applauders and admirers, so that from this time forward he became the representative not merely of one of the districts of Massachusetts, but of a great embryo party, the party in fact of northern sentiments and ideas, a party which he himself in times past had contributed his share towards burying under ground, but which he now labored night and day to help emerge again into life. Nor did Mr. Adams confine his labors on this question to congress. In the famous *Amistad* case, the case of certain newly-imported Africans, who while being transported from one port of Cuba to another, had made themselves masters of the vessel and

had escaped to the coast of the United States, he appeared in the federal supreme court as counsel for the Africans, in opposition to the claim set up by their Spanish purchasers from whom they had escaped, a claim zealously urged not merely by the Spanish government, but covertly also by Mr. Van Buren, then president of the United States. Indeed, he seldom declined any occasion in his power of addressing an audience. The following may serve as a specimen: He left Boston one Monday morning to attend the opening of congress. That same evening he delivered an address before the Young Men's institute in Hartford, Connecticut, and the next evening a similar lecture before a similar institute in New Haven. On Wednesday evening he lectured before the New York lyceum; on Thursday evening he delivered an address in Brooklyn, and on Friday evening another lecture in New York, whence he proceeded next day to Washington to be present at the opening of congress on the following Monday. Though Mr. Adams was greatly engrossed by the subject of slavery, he did not confine his attention to it. Few leading topics came before the house on which he did not speak. In the organization of the house in December, 1839, which had been delayed for four days by the persistency of the clerk in undertaking to reject certain members from New Jersey who had certificates of election, but as the clerk thought improperly granted, Mr. Adams finally intervened with great energy and effect, and to general satisfaction. It was chiefly through his activity and perseverance that the Smithsonian institute was organized. In 1845, the obnoxious "gag rule," originally enacted in 1836, was rescinded, and from that moment Mr. Adams somewhat relaxed his zeal and labors. He began indeed to feel at last the effects of age. His health had been somewhat shaken by a heavy fall in the house, caused by his foot catching in the floor matting, by which his shoulder was dislocated and a severe contusion inflicted on his forehead. It rendered him for the moment insensible, and though it did not prevent his appearance the next day in his seat, he suffered permanently from it. On Nov. 26, 1846, just as he was about to leave Boston for Washington, he experienced a shock of paralysis which kept him from his seat for the next four months. After this he attended congress regularly, but seldom spoke. On Feb. 21, 1848, he had a second attack while occupying his seat in the house. He was taken to the speaker's private room, where he remained in a state seemingly of unconsciousness, though with occasional incoherent utterances, till the 23d, when he expired. His last words are said to have been, "This is the last of earth; I am content." In addition to his voluminous speeches in congress, many of which were written out by himself, on various subjects, a great number of his acknowledged publications appeared in his life-

time. He left behind him a very voluminous diary, extending from his early youth to his death, one or two valuable fragments from which have already appeared. His journal, which is in the hands of his son, is regarded as a great political treasure. Though too voluminous, perhaps, for publication as a whole, the material parts of it will doubtless in due time be laid before the public. Mr. Adams wrote with great fluency, his manuscript seldom presenting an erasure, but he lacked altogether that idiomatic elegance, force, and simplicity, so conspicuous in his father, instead of which his style is swelling, verbose, inflated, and rhetorical. He lacks, also, though not without powers of sarcasm, the wit and fancy which sparkled in his father's writings, and still more so that spirit of philosophical generalization into which John Adams constantly fell, but which was totally foreign to the intellectual constitution and habits of the son. John Quincy Adams had more learning, perhaps, but John Adams had much more genius. In energy, spirit, firmness, and indomitable courage, John Q. Adams was his father's equal; in self-command, in political prudence, and even perhaps in capacity for hard work, his superior. Both will live forever as representatives and embodiments of the spirit and ideas of New England during the periods in which they figured. In some respects John Q. Adams was far more fortunate than his father. The brilliant period of his career was toward its close. The longer he lived the higher he rose, and he died as such men prefer to die, still an admired and trusted champion, with harness on his back and spear in hand. Yet his whole political career, taken together, hardly presents to the close observer a character so uniformly brilliant and unspotted, and so free from the taint of selfishness, as that of his father. In personal appearance, and in general temperament and character, the resemblance between the father and the son was close. Both had very strong feelings and warm prejudices, though of the two John Quincy appears to have been the less vehement by nature, and also the better under control. Like his father, he was an economical housekeeper and judicious financier, and he died in possession of a handsome estate.—CHARLES FRANCIS, the only child of the preceding, who survived his father, was born in Boston, Aug. 18, 1807. At the age of two years he was taken by his father to St. Petersburg, where he passed the next six years, and learned to speak the Russian, German, and French, as well as the English. In Feb. 1815, he made the journey with his mother in a private carriage from St. Petersburg to Paris, to meet his father there—in the then disturbed state of Europe no slight undertaking. He accompanied his father on his mission to England, and being placed at a boarding school, according to the fustian usages, then, if not still in vogue in English schools, he was obliged to fight his

English schoolfellows in defence of the honor of America. In 1817 he returned with his father to America and was placed in the Boston Latin school, whence he entered Harvard college, where he graduated in 1825. The next two years he passed at Washington, with his father, who was then president, but in 1827 returned to Massachusetts and pursued the study of the law in the office of Daniel Webster. In 1828, he was admitted to the Boston bar, but never, we believe, has engaged actively in practice. In 1829 he married the youngest daughter of Peter C. Brooks, a Boston millionaire—a connection which also made him a brother-in-law of Edward Everett. The next year he was nominated a representative from Boston to the Massachusetts legislature, but declined. This did not please his father, in consequence of which he accepted the nomination the next year, and served in the house for the next three years, when he was transferred to the senate, in which he served two years. By this time Mr. Adams began to differ on several points from the leaders of the whig party, with which he had hitherto acted. In 1848 he was selected by the newly-organized free soil party as their candidate for the vice-presidency, along with ex-president Van Buren as candidate for the presidency. Mr. Adams has been a contributor to the "North American Review" and the "Christian Examiner," and between 1845 and 1848 was the editor of a political daily paper at Boston, by which he contributed to prepare the way for the present republican party. He is principally known, however, as the editor of his grandfather's collected writings, published in ten volumes, the first volume containing a *Life of John Adams*, of which Charles Francis is the writer. This is a highly respectable performance, but the struggle to preserve impartiality, though not always successful, has superinduced a certain tameness and vagueness, while there is room to doubt whether Mr. Adams possesses a cast of mind which qualifies him fully to appreciate his grandfather's gifts as a philosophical speculatist. Few biographies, however, written by "one of the family," have been so well done. The same duty which Mr. Adams has performed for his grandfather he intends to perform for his father, for the execution of which he possesses abundant and most valuable materials. In addition to the fortune inherited from his father, another one has come into Mr. Adams's hands by marriage. Much of his time and thoughts are directed to the management of this large estate, which he has several children to inherit, and which under his judicious and economical administration is rapidly accumulating.

ADAMS, NEHEMIAH, D. D., a Congregational clergyman in Boston, Mass., born in Salem, Feb. 19, 1806, graduated at Harvard college 1826, studied divinity at Andover, settled as colleague pastor with the Rev. Dr. Holmes over the First church in Cambridge Dec. 17, 1829, resigned March 17, 1834, and installed over the Essex street church in Boston, March 26

of the same year. Dr. Adams has taken an active part in the controversy with the Unitarians in Massachusetts, and has published several works of a polemic and devotional character. The principal of these are "Remarks on the Unitarian Belief," "The Friends of Christ in the New Testament," Boston, 1851, "Life of John Eliot," beside a variety of occasional discourses. Mr. Adams was also a frequent contributor to the "Spirit of the Pilgrims," a religious periodical, Boston 1826-33, devoted to the defence of the Puritan faith against the encroachments of modern liberalism. His most recent work, entitled "South Side View of Slavery," Boston, 1864, records his impressions of slavery during a temporary residence in Savannah. It presents a highly favorable view of that institution, especially of its influence on the religious character of the slave. He has also published a correspondence on the same subject with Gov. Wise of Virginia. Dr. Adams is distinguished for his extensive literary cultivation, his devotion to the duties of a pastor, and his interest in the leading religious charities of the day. For many years he has been an officer of the American tract society and of the American board of commissioners for foreign missions. As a preacher, he is remarkable for earnestness, for the inculcation of strictly evangelical principles, and for chaste and persuasive eloquence.

ADAMS, ROBERT. I. An English mechanician and optician at the end of the last century, a man of many remarkable accomplishments. He wrote a work in 5 volumes, entitled "Lectures on Natural and Experimental Philosophy," aimed at the theories of the materialist school of philosophers, and animated by a strong religious spirit. He was also author of "Astronomical and Geographical Essays." Both these works were translated into German by Ghesler. II. An American sailor, a native of Hudson in the state of New York, who was taken prisoner by the Moors on the coast of Africa and worked as a slave in the interior. He was picked up in the streets of London by some gentlemen connected with the African trading company, who listened to his tale, believed it, and published a handsome edition of it under the title, "The Narrative of Robert Adams, a sailor who was wrecked on the western coast of Africa, 1810, was detained three years in slavery by the Arabs of the Great Desert, and resided several months in the city of Timbuctoo." He was one of a ship's company that set sail from New York for Gibraltar in 1810. On the north-western coast of Africa they were shipwrecked Oct. 11, and taken prisoners by a tribe of Arabs, who made partition of them and carried them into different parts of the interior. He was captured from the Arabs by the negroes and conveyed to Timbuctoo, a description of which city he gives. After a long sojourn here, he was bought by Moorish traders and left Timbuctoo Dec. 1811. His treatment by the Moors was

very hard; he was sold from one master to another, and forced to cruel labor in the fields and gardens. At this time he had three companions with him. To escape from their hardships they abjured Christianity, embraced Mohammedanism, were immediately set free from bondage, and placed in comfort. Adams refused to take this step, and this refusal brought down upon him a still severer pressure. At last an agent employed by the British and American consuls to purchase their respective citizens out of bondage, heard of the existence and situation of Adams, and redeemed him from captivity for \$105. The "North American Review," in two papers to be found in its 5th volume (1817), casts doubt upon the whole story, and considers Robert Adams to be a mere impostor, seeking to work upon the taste for the wonderful and the charitable feelings of wealthy English philanthropists for his own objects. If this was so, he was successful, as he received a liberal equipment and a free passage from England to New York.

ADAMS, SAMUEL, a leading actor in the American revolution, born in Boston, Sept. 27, 1722, of a family long settled there, where he died Oct. 2, 1803. His grandfather was a grandson of Henry Adams, the same emigrant from England to Massachusetts from whom John Adams, second president of the United States, traced his descent. These two illustrious coöperators in the American revolution had both the same great-grandfather—a son of Henry Adams. This made them second cousins. He was prepared for college at the Boston Latin school, then taught by the elder Lovell, and entered at Cambridge, in 1786. Previously to the revolution the names of the graduates of Harvard college are arranged in the college catalogue, not alphabetically, but in an order of precedence, according to the estimated rank of their families. In a class of 24, John Adams held the fourteenth place; Samuel Adams in a class of 22, the fifth. The Boston branch of the Adams family would seem to have attained to a somewhat higher colonial position than the branch which remained at Braintree. The misfortunes of his father who was engaged in trade, and who was nearly ruined by connection with a banking speculation known as the "manufactory scheme," obliged him to leave college before completing his course; but such had been his diligence while he remained, that the faculty rewarded him with a bachelor's degree. These family misfortunes, followed by his father's speedy death, compelled the young Adams to forego the intention he had formed of entering the clerical profession, and to attempt instead to continue his father's mercantile business. For this occupation, however, he was little fitted, and in it he had but indifferent success. In efforts on behalf of the unfortunate speculators in the "manufactory scheme," Samuel Adams found an early introduction to politics, which ultimately became the chief interest and

principal employment of his life. Fully to understand the first connection of Samuel Adams with politics, a brief retrospect becomes necessary. The use of paper money first introduced into Massachusetts in 1690, and which had speedily driven coin out of circulation, had, in consequence of over issues, been attended with great depreciation and fluctuations of prices. These issues were made for limited periods, and in consequence of the remonstrances of the English merchants trading to America, orders had been sent to Governor Belcher to agree to no new ones. The circulating paper being gradually absorbed, and the year 1741 being fixed for its complete withdrawal, the effect of this operation was much like that of a bank contraction of our day. The Boston merchants, and indeed the body of the people, complained bitterly of the scarcity of money, and an attempt was made to force Governor Belcher, by withholding his salary, to consent to new issues, or to extend the period of the old. As he proved inflexible, two joint stock banking companies had been got up: one, called the "silver scheme," proposed to issue \$150,000 in notes, redeemable in silver at the end of 15 years, the other called the land bank or "manufactory scheme" (that in which Adams's father was concerned), undertook to circulate double that amount, to be redeemed at the end of 20 years, in colonial produce. The "silver scheme" was patronized by the merchants and traders, the land bank by the farmers and mechanics. Belcher zealously opposed both. In spite, however, of the governor's proclamation, notes were issued by both companies, and those of the land bank, especially, were largely pushed into circulation. That company had 800 stockholders, and held complete control of the Massachusetts house of representatives. Belcher even apprehended an insurrection to compel him to give his consent to the scheme, and his opponents did succeed in obtaining his removal. But this did not avail them, for the operation of these two Massachusetts banks was cut short by an act of parliament extending to the colonies an act of the previous reign, occasioned by the South Sea and other bubble schemes, which prohibited the formation of unincorporated joint-stock companies with more than 6 partners. The two banking companies were thus compelled to wind up; the partners were held individually liable for the notes, and the "manufactory scheme" especially, the affairs of which remained unsettled for several years, proved ruinous to the few partners who had any thing to lose, of whom Adams's father was one. This act of parliament was denounced by the friends of the banks as a violation of the chartered rights of Massachusetts. The young Adams thus entered upon politics as the opponent of parliamentary authority, and as a champion for the body of the citizens—a position, which, to a certain extent, his father seems to have occupied before him. How strongly his mind was turned in this direction, appears from the sub-

ject he chose for his thesis upon taking his degree of A. M. He proposed as a question, "Whether it be lawful to resist the supreme magistrate, if the commonwealth cannot otherwise be preserved?"—as to which he supported the affirmative. Not succeeding in business, he obtained the post of tax collector for the town of Boston, an office which brought him into contact and acquaintance with all the inhabitants, and which obtained for him, from his political opponents, the cognomen of Samuel the publican. During the administration of Governor Shirley, he was steadily in the opposition. Against Bernard—his influence increasing with his age—he took a still more decided part. From an entry in John Adams's journal, under date of Feb. 1763, it would seem that at that time there were in Boston two clubs—one the "merchants' club," the other the "caucus club"—accustomed to meet and to agree upon persons to be supported as town officers, and that the caucus club used to send committees to consult and agree with the merchants' club as to men and measures. Of this caucus club—a corruption probably of caulkers' club as having been originally composed of ship building mechanics—Samuel Adams was then and long had been an active member. Gordon, indeed, traces back the existence and influence of this club to the time of Adams's father. Some deficiency in Adams's account of his tax collections—for he was no man of business—had thrown him for a while into the shade; but the troubles now impending brought him conspicuously forward. He took an active part in all town meetings, at which his energy and courage made him a leader. The instructions given by the town of Boston, in May, 1764, to their newly-chosen representatives—the first decided protests from any part of America against Grenville's scheme of parliamentary taxation, were drawn up by him; and he was chosen the next year as one of the three representatives in the general court of the town of Boston—a position which he held for 9 years following. Upon his entry into the house he accepted the office of clerk, a position which not only produced him a small addition to his limited income, but enabled him also to exercise a certain influence over the course of proceedings. The Massachusetts house of representatives consisted at this time of upwards of a hundred members, the most numerous assembly in the colonies. Its debates had begun to attract attention, and a gallery was now first erected for spectators. Besides taking a leading part in the debates, it devolved upon Adams to draw the larger part of the papers put forth by the house in its controversies with Bernard and Hutchinson—an office for which his fluent and eloquent pen and the mixture in his character of caution with fire, courage, and decision, admirably fitted him. The following account of Samuel Adams, sketched from the life, at the period of his entering the house, is found in the diary of John Adams, under date

of Dec. 23, 1765; "Adams is zealous, ardent, and keen in the cause; is always for softness, delicacy, and prudence when they will do, but is staunch and stiff and strict and rigid and inflexible in the cause." A previous paragraph had sketched Gray—who afterwards joined the tory party—and Thomas Cushing. After a sketch of James Otis—the diary adds, "Adams, I believe, has the most thorough understanding of liberty and her resources in the temper and character of the people, though not in the law and constitution; as well as the most habitual radical love of it of any of them; also the most correct, genteel, and artful pen. He is a man of refined policy, steadfast integrity, exquisite humanity, fair erudition, and obliging, engaging manners, real as well as professed piety and a universal good character, unless it should be admitted that he is too attentive to the public and not enough so to himself and his family." Governor Hutchinson—a no less competent observer, but who looked at Adams from an entirely opposite point of view—gives in the 3d volume of his history of Massachusetts substantially the same account. He sets down Samuel Adams as the most artful and insinuating politician he had ever known, and the most successful "in robbing men of their characters and calumniating the servants of the crown." He refers to the defalcations of Mr. Adams as collector of taxes, adding by way of comment, "The benefit to the town from his defence of their liberties he supposed an equivalent to his arrears as their collector." Adams had married young, and while he thus devoted himself to politics, it was chiefly the industry and economy of his wife that supported the family. And yet this good and true wife, to whom not merely her husband, but the community stood thus indebted, has attracted so little the notice of biographers that we are unable to give even her name. Though poor, Adams was incorruptible. It had been proposed to silence him by the gift of some place under government; but Hutchinson in a letter to England declared, that such was his "obstinacy and inflexible disposition," that no gift nor office would ever conciliate him. The passage of Townsend's act in 1767, and other acts of parliament which evinced a determination to raise a parliamentary revenue in America by taxes on trade, brought the colonists in a body to the ground that taxes on trade if designed to raise a revenue, were just as much a violation of their rights as any other tax. Adams took a leading part in urging those views, and the petition of the Massachusetts general court to the king agreed to on this occasion, their letter of instruction to their agent in England, and a circular letter addressed to the speakers of the popular branch of the several colonial assemblies, inviting consultation and mutual coöperation for the defence of colonial rights, were all from his pen. Hutchinson states that as early as 1769 some objections having been made to a motion pending in a Boston town meeting that it savored of independence,

Adams wound up a speech in defence of it with this bold declaration—"Independent we are, and independent we will be." Upon the occasion of the so-called Boston Massacre in March, 1770, Samuel Adams was appointed chairman of a committee to wait upon the governor and council with the vote of a town meeting to the effect, that nothing could restore order and prevent blood and carnage, but the immediate removal of the regular troops, which instead of encamping, as had formerly been usual, on the fortified island in the harbor, known as Castle Island, had for the last 18 months, to the great annoyance of the inhabitants, been stationed in the town. Adams entered the council chamber at the head of the committee and delivered his message. Colonel Dalrymple, the commander of the troops, was present, as was the commander of the ships of war in the harbor. In reply to the vote of the town presented by the committee, lieutenant-governor Hutchinson disclaimed any authority over the soldiers, to which Adams replied by referring him to that clause in the provincial charter which declared the governor, or in his absence the lieutenant-governor, commander-in-chief of all the military and naval forces in the province. After a consultation with Dalrymple, Hutchinson replied that the colonel was willing to remove one of the regiments if that would satisfy the people. "Sir," said Adams, "if the lieutenant-governor, or Colonel Dalrymple, or both together, have authority to remove one regiment, they have authority to remove two; and nothing short of the departure of the troops will satisfy the public mind or restore the peace of the province." The energy of Adams prevailed, and both regiments were sent to the castle. The destruction of the tea attempted to be forced on the colonies, the passage of the Boston port bill and of the bill modifying the Massachusetts charter, and the appointment of General Gage as governor at the head of an army, brought things to a crisis. As Gage entered the harbor of Boston, May 18, 1774, a town meeting at which Adams presided was in session, assembled to take the port bill into consideration, news of which had just arrived. At the June meeting of the general court a continental congress was proposed to assemble at Philadelphia, to which the representatives appointed five delegates, of whom Adams was one; and Gage having thereupon suddenly dissolved the court, the patriots immediately began to organize a distinct government of their own. Transferred thus to Philadelphia, and from the Massachusetts general court to a continental congress, Adams began now to act on a broader scene. His first act was one of conciliation. He was himself a strict Congregationalist, and the recent attempts to extend Episcopacy in America, and the controversy thence arising, had produced a good deal of feeling. A motion by one of the Massachusetts delegates to open the proceedings of the congress with prayer was opposed by Mr. Jay, one of the delegates

from New York, on the ground that as there were in that body Episcopalians, Quakers, Anabaptists, Presbyterians and Congregationalists, they would hardly be able to join in the same act of worship. Thereupon "Mr. Samuel Adams arose,"—so wrote John Adams in a letter to his wife, describing the scene, "and said he was no bigot, and could hear a prayer from a gentleman of piety and virtue who was at the same time a friend to his country. He was a stranger in Philadelphia, but he had heard that Mr. Duché deserved that character, and therefore he moved that Mr. Duché, an Episcopal clergyman, might be desired to read prayers to the congress." The motion passed, and Duché, at that time the most popular preacher in Philadelphia, appeared the next morning and officiated with great unction. He acted as chaplain to congress for several sessions, but when the British occupied Philadelphia, he abandoned the cause of his country, and even had the impudence to write Washington a letter exhorting him to the like piece of treachery. Adams's motion, however, was very well timed. It not only pleased the Episcopalians, a powerful body in New York and predominant at the south, it also secured for the moment, Duché himself, whose example was not without its effect upon others. In this congress and those which followed, Adams, who continued a member for 8 years, took an active, decided, and influential part. No one man, perhaps, did so much as he to put the revolution in motion, and to bring about the separation from the mother country, to which, indeed, General Gage bore testimony in excepting him, along with Hancock, from his offer of pardon in case of submission. In administrative talents, however, he was not so conspicuous, and the line of policy which he supported in congress was rather graduated to accord with the feelings, sentiments, and sometimes the prejudices of the people, than always calculated to meet the actual exigencies of affairs. Together with John Adams he took an active part in the formation of the state constitution of Massachusetts, adopted in 1780. He was a very influential member of the Massachusetts convention called in 1788, to consider the federal constitution, and though opposed to many of its features, he was finally persuaded, along with Hancock, to give it his support, in consideration of certain proposed amendments, of which several were afterwards adopted. This decision of the question, so far as Massachusetts was concerned, was of the greatest moment, involving in it the action of other states, and in fact the fate of the new government. The next year Adams was chosen lieutenant-governor of Massachusetts, which office he held till 1794, when he was chosen governor as Hancock's successor. He was a warm admirer of the French revolution, and in national politics leaned decidedly to the republican or Jeffersonian party. It was this circumstance, no less than his increasing age and infirmities, that induced him in 1797, the federal party being predominant in Massa-

chusetts, to decline serving longer as governor, and to retire to private life. A highly-characteristic portrait by Copley, which hangs appropriately in Faneuil Hall, has transmitted his features to us. The best memorials of his life and service are to be found scattered through the writings of John Adams, who in his old age exerted himself to recall public attention to his colleagues of the revolutionary times. Sullivan, in his "Familiar Letters on Public Characters," describes Samuel Adams as "of common size, muscular form, light blue eyes, fair complexion, and erect in person. He wore a tie wig, cocked hat, and red cloak. His manner was very serious. At the close of his life, and even from early times, he had a tremulous motion of the head, which probably added to the solemnity of his eloquence, as this was in some measure associated with his voice."—Having inherited no fortune, being without a profession, he was, down almost to the close of his life, without resource except in the salaries and emoluments of office, never large, and only eked out by the industry and economy of his wife. Yet those who visited his house found nothing mean or unbecoming his station, since he knew how to combine decency, dignity, and propriety, with a small expenditure. At a late period of his life he obtained a competency, but only by a very afflicting event—the death of his only son of the same name with himself, who, having graduated at Harvard college in 1771, had studied medicine with Dr. Joseph Warren (the famous general), had served as a surgeon through the revolutionary war, and returning home with a broken constitution, had died in 1788. The avails of his claims for services in the army gave his father a competency in his declining years. In one respect—indeed in many, but we can here refer only to one—there was a remarkable contrast between Samuel and John Adams. Both true to their New England origin were theologians; but John Adams, while to a certain extent a conservative in politics, was quite a neologist in religion. The Arminian heresies of his youthful days had prevented him from studying divinity, and in the correspondence of his extreme old age he appears almost as much a free-thinker as Jefferson himself. Samuel Adams, on the other hand, though to his last days a progressive in politics, was always a decided conservative in religion, adhering with sincere persuasion and firm tenacity to the five points of Calvinism.—Nor did this strictness limit itself to doctrine. "At a time," says Edward Everett, "when the new order of things was inducing laxity of manners and a departure from the ancient strictness, Samuel Adams clung with greater tenacity to the wholesome discipline of the fathers." But Mr. Everett scarcely does justice to Mr. Adams's spirit of sociality when he adds, "His only relaxation from business and the cares of life was in the indulgence of a taste for sacred music, for which he was qualified by the possession of a most angelic voice and a soul

solemnly impressed with religious sentiment." He was, on the other hand, fond of conversation, and possessed himself a large fund of anecdote. Beside the state papers of which Adams was either wholly or mainly the author, and his numerous political contributions to the newspapers, of which, however, but few have been identified, there have appeared in print a number of his letters, and also an oration on American independence, delivered in Philadelphia Aug. 1, 1776—a very favorable specimen of his style, neat, forcible, and pointed, without the least inflation or appearance of effort. In this oration he gives the English the title of a "nation of shop-keepers," and it is not impossible that it was hence that Bonaparte borrowed this appellation, which was a favorite one with him, since it is known that Adams's oration was translated into French and published at Paris. We are sorry to be obliged to add that there is yet no extended memoir of this distinguished patriot, nor, what is more within the reach of the present generation, any collection of his writings. He left only female descendants, and the name of Adams is no longer borne by any of his blood.

ADAMS, WILLIAM. I. An English navigator, born in the county of Kent, 1755, died at Firando 1831. He received his education at the naval school at Limehouse, London; entered the Dutch service, in which he visited the Japanese islands, and was retained at court by the emperor of Japan. He rendered great services to Dutch and English commerce. In Purchas's collection are to be found two letters of Adams's, wherein he relates his adventures, and states some curious facts about Japan. **II.** Master of Pembroke college, Oxford, was the friend of Dr. Johnson, and acquired celebrity by the manner in which he attacked the tenets of Hume. Died in 1789. **III.** An English lawyer born Jan. 13, 1772, died Jan. 11, 1851. In 1814 he was appointed a commissioner along with Lord Gambier and Mr. Goulbourn, to make a treaty of peace with the United States. These commissioners negotiated the treaty of Ghent, which put an end to the war of 1812. In 1820 Mr. Adams was employed as one of the counsel in prosecuting the bill for the divorce of George IV. from Queen Caroline.

ADAMSON, JOHN, English author, born Sept. 1787, died Sept. 1855, distinguished himself by his literary tastes and his partiality for some branches of natural history. Portuguese literature was his particular study, to which he was predisposed from a residence in Portugal in the early part of his life. In 1820 he wrote a memoir of Camoens, the great poet of Portugal. He subsequently, in 1842 and 1846, published two volumes on the history, antiquity, and literature of Portugal. He had a very perfect collection of Portuguese literature of which he published a catalogue, but it was unfortunately destroyed by fire in 1849. In conjunction with Mr. Quillinan, he commenced the

translation of the *Lusiad*, of which 5 cantos were published when Quillinan's death interrupted the work. He received the honorary distinction of knighthood from the crown of Portugal.

ADAMSON, PATRICK, a Scottish prelate, born at Perth 1543, died 1591. In 1566 he went to France as tutor to a young man, and was at Bourges during the massacre of St. Bartholomew. In 1578 he returned to Scotland, where he took orders, and became a minister at Paisley. On the death of Archbishop Douglas he was appointed to the vacant see of St. Andrews. Either from his zeal in upholding the old form of worship, or from his support of certain oppressive measures, he brought upon himself the enmity of the Presbyterians, who persecuted him bitterly during the remainder of his life. He was for some years resident at the court of Elizabeth as ambassador of Scotland, and was recalled from this post in 1584. At a synod held at St. Andrews in 1586, accusations were presented against him, in consequence of which he was excommunicated, but, at the next general assembly, having sent in his submission, the sentence was removed. The activity of his enemies did not cease, however, and not long after, the king granted the revenues of his see to the Duke of Lennox, in consequence of which the rest of his life was passed in great destitution. The records of his life hardly justify the panegyric of Mr. Wilson, the editor of his works, who says that "he was a miracle of nature, and rather seemed to be the immediate product of God Almighty, than born of a woman."

ADANA, a pashalik of Turkey in Asia, part of the ancient Cilicia, with a capital of the same name not far from the site of the ancient Tarsus. It commands the passes of the Taurus chain, and was colonized by Pompey with pirates. The modern city was for some time in possession of Mehemet Ali, after the battle of Koniah, when it had been seized by Ibrahim Pasha. It has about 10,000 inhabitants, is well built, and contains several ancient remains of interest. The bridge across the Sihoon at this point is reported to have been constructed by Justinian, and the castle is also notable. Wool, cotton, corn, wine, and fruit, are the staples of its commerce.

ADANSON, MICHAEL, French naturalist, born 1727, died 1806. His abilities and scientific knowledge were of the first order. At the age of 21 he went, at his own cost, though of very limited fortune, to the French colony of Senegal to study nature. He remained there five years, and then returned to France with a fine collection. He first attacked the Linnæan method, and his writings paved the way for the acceptance by the scientific world of Jussieu's system. He proposed to found a colony with free negroes in Senegal, which was not, however, favored by the ministry of Louis XV. His name is associated with a plan for a vast cyclopædia of natural history, which the acad-

emy had not the courage to take up. He however persisted in his ideas and collected immense masses of manuscript material. By the revolution of 1789 he was stripped of every thing, and reduced to such abject poverty, that when he was afterwards invited to take his seat as a member of the institute, he was obliged to decline for want of shoes. He received a small pension, in the enjoyment of which he died from a general decay of nature in his eightieth year.

ADAR, the name of the 6th month in the civil year of the Jews, and of the 12th in their sacred, answering to the end of February and the beginning of March. A fast for the death of Moses is observed on the 7th, the feast of Esther on the 18th, and on the 14th the feast of Purim. The second Adar occurs every three years, when the Jews, who reckoned 12 lunations as a year, were obliged to intercalate a thirteenth month.

ADDA, a river of Italy, a tributary of the Po. It rises in the Rhætian Alps, flows through the Valtellina and Lombardy, and enters the Po about 8 miles from Cremona. Its course is about 80 miles. Lodi, the scene of one of Napoleon's triumphs, and Cassano, at which Moreau was defeated in 1799, are on its banks.

ADDINGTON, a county in the south-eastern part of Canada West, near Lake Ontario, with an area of 576 square miles, and a population of 15,165. The Nepawee river and other streams drain it, besides which it contains several small lakes. Lumber, wool, and the products of the dairy, are its chief staples. The routes of two proposed railroads, one from Kingston to Toronto, the other from Pittsburg to Peterborough, traverse the county. Bath is the principal town.

ADDINGTON, HENRY, created Lord Sidmouth, born 1755, died Feb. 15, 1844. He was the son of a physician, and being educated at the same school with William Pitt, son of the great Lord Chatham, a youthful intimacy sprung up which ripened into friendship. In 1782 he was encouraged by his friend to enter the house of commons, although brought up to the medical profession. In 1789 he was elected speaker, and continued to support Pitt. The only important occasion on which he voted against Pitt was on the slave question, when Mr. Addington supported a gradual emancipation. In 1801 Pitt resigned the chancellorship of the exchequer and Addington took his place. He was instrumental in forming the treaty of Amiens in 1802, the objectionable clauses in which were vigorously attacked by Windham and Grenville. But in 1803, when peace was considered dishonorable, he supported a war policy. The Prince of Wales, afterward George IV., had a personal dislike to Addington, and the illness of George III. gave the prince opportunity to show his animosity. In 1804 Addington resigned, and the king created him a peer by the title of Lord Sidmouth. After Pitt's death, Lord

Sidmouth, in 1806, formed a coalition ministry with Fox and Grenville, but this was soon broken up by the death of Fox. In 1812 Lord Sidmouth was secretary in the home department in Lord Liverpool's ministry. In 1822, on the death of Lord Castlereagh, he retired from public affairs, and Mr. Peel, afterwards Sir Robert Peel, succeeded him. Lord Sidmouth died at the great age of 89, outliving the generation of giants which the political events in the last years of the 18th century and commencement of the 19th had called forth.

ADDISON, a county in western Vermont, containing an area of 750 square miles. Lake Champlain bounds it on the W. and Otter Creek and its tributaries drain it, affording excellent water power. Near the lake the surface is almost level, but becomes rugged and mountainous toward the east. The soil is fertile, producing in 1850, 818,421 bushels of potatoes, 175,478 of corn, 211,885 of oats, 103,434 of wheat, 88,793 tons of hay, 876,771 pounds of butter, 817,149 of cheese, 625,594 of wool, and 205,268 of maple sugar. Manufactures of cotton, wool, paper, &c., are carried on, and quarries of white and veined marbles are extensively worked. It was organized in 1787, and named in honor of Joseph Addison. Capital, Middlebury; population, 26,549.

ADDISON, JOSEPH, English author, born May 1, 1672, died June 17, 1719. His life may be divided into three periods: the first, that of a student, during which he acquired a high reputation for learning and facility in composition, both Latin and English, while a resident graduate and fellow at Oxford; the second, a long, and on the whole, fortunate official career, as an employé of the government; and the third, an interrupted, yet congenial and prosperous course of authorship. These several phases of a life, memorable for its dignified and urbane tenor, were sometimes interwoven and coincident, but together they represent the sum of Addison's public labors. The integrity, good taste, and amiable feeling which characterized the man, both in office and authorship, as a representative of political authority and a devotee of letters, endeared him to his friends, when living, and have hallowed his memory and writings to succeeding generations. The example of kindly humor in an age of sarcastic wit, of friendly association in one of political animosity, of purity of sentiment and correctness of diction in one of coarse and careless expression, was invaluable; and, with the modest and benevolent traits of Addison and his delightful conversation, adequately explain the remarkable esteem and affection in which he was held. For many years his circumstances were dependent on that fluctuating element called "the state of parties;" but he escaped the more painful drudgery which cramped the genius of an earlier race of English authors; and carried on the literary fame of his country from the death of Dryden to the days of Johnson and Goldsmith. Few names are more cherished on that

noble roll, and few writings have exercised a more prominent and pleasing influence on taste and social character than those of Addison. Although remarkably sensitive in regard to his reputation, it has been only by degrees that editions of his writings have approximated to completeness and due arrangement; he dedicated them, in his last hours, to one friend, and gave another minute direction for their republication; but the latter, Tickell, was jealous of Addison's friendship for Steele, and his assistance was requisite to identify the contributions to the "Tatler" and the "Spectator;" and this not being sought, the edition then prepared was unavoidably imperfect; subsequent ones were projected by Steele, and at a later period by Dr. Beattie; but the writings of this favorite British classic continued to appear in a fragmentary shape, until Bishop Hurd undertook their collection and annotation—a task for which he was but partially fitted. One of the most perfect editions of Addison's writings, as regards completeness, propriety of arrangement, and scholarly annotation, was published in this country in 1858. ("The Works of Joseph Addison, including the whole contents of Bishop Hurd's edition, with letters and other pieces not found in any previous collection." Edited with critical and explanatory notes by G. W. Greene. In 5 volumes.) The "Spectator" has been most frequently reprinted, and the tragedy of "Cato" has never been entirely lost from the stage. The polished heroics of Addison addressed to his patron, or induced rather than inspired by a political demand, reflect the scholar more than the poet. According to our present mode of estimating verse, his muse is academic rather than spiritual, correct rather than earnest; and accordingly, in this regard, his fame is more historical than absolute. It is by the graces of his prose—the absence of exaggeration—the clear, easy, yet refined style—the moral purpose—the social charm, and the delicate humor of his essays, that Addison made himself a household favorite wherever the English tongue is spoken or read. He was, in many respects, a pioneer in these excellences, and initiated the higher class of periodicals, which, in our age, rank as essential organs of public sentiment, and mediums of literary triumph or pleasure. A Christian spirit informs the pages as it did the life and death of Addison, and has greatly tended to consecrate his fame. The taste of our day is for a more intense school, a more dashing rhetoric and deeper insight; compared with the essayists now in vogue, Addison seems to lack fire, breadth of purpose, and sympathy with great interests. Yet it is conceded by the judicious, that his serenity, evenness, self-possession, and quiet grace—and especially his unaffected English, and unexaggerated tone, might be copied, with eminent advantage, by the ambitious writers of to-day. Of his pre-eminent services to good taste and social amelioration, and of his high and permanent claim to standard authority in English literature, there,

however, has been no question amid all the vicissitudes of style and taste since his time.—Addison was the son of a Wiltshire dean, and his early childhood was passed at his father's rectory of Milston. His preparatory education was completed at the charter-house school, whence he was transferred to Oxford and entered Queen's college; but his proficiency in Latin versification induced his election to Magdalen college; his master's degree bears the date 1698, and from 6 years subsequent, until 1711, he held a fellowship. Thus the experience of Addison, until after the age of 20, was purely that of domestic and academic life. The foundation of his character and the habits of his mind were thus cast in the serene and intellectual mould of scholarship and retirement; unhampered by the cares of public or professional life, he lived in his books, and the zest he found in the world was that of the philosophic observer rather than the impulse of ambition or the excitement of affairs. This training, as well as his own inclination, naturally bred a desire to adopt his father's vocation—evidently the best adapted to the quiet habits, strong literary bias, and constitutional diffidence of Addison. But the era was one of earnest political warfare, and the ability of the student became known to party-leaders only to be enlisted in their behalf. Yet it may be doubted if, until his popularity as an essayist was established, any portion of his career was more satisfactory and congenial than his student-life at Oxford. There he passed years in the investigation of classical subjects, in communion with the great writers of antiquity, in noting his thoughts, comparing translations, conversing with scholars, and taking his regular walk along the Cherwell, a favorite promenade at Oxford which still bears his name, and is a permanent scene of interest to strangers. According to the custom of the day, when determined to give his time and talents to the whigs, Addison became an *attaché* to Montague, afterward earl of Halifax, to whom Congreve first introduced him; subsequently he was befriended by the gifted and noble Somers; and although the connection, in both instances, was founded on the expectation of public services, his patrons were men of sufficient culture to appreciate and respect his attainments and talents for their intrinsic merit. Like most men of letters who adventured in the field of political activity, Addison's opportunities and remuneration were, for a long time, precarious and inadequate; and he produced casual works of but limited interest. Thus we find, in the first editions of "Dryden's Miscellanies," a poem addressed by him to that veteran writer; and in another volume of the same work, a translation from his pen into heroic English verse, of the greater part of Virgil's Fourth Georgic; he previously wrote an essay on this work of the great Mantuan, began a translation of Ovid, and sketched an "Account of the greatest English Poets," addressed to his fellow-collegian Sachaverell. His first occasional effort, devoted

to the events of the hour and directly conducive to his popularity and promotion, appears to have been "a poem" which celebrates the capture of Namur, and is addressed to the victor King William. These verses bear the indications of a muse "whipped into service;" they are artificial and uninspired, but the address to the lord-keeper Somers, probably kindled by grateful sentiment, has much of the grace and spirit of his best efforts. It was some time before any substantial result followed this poetic appeal; meantime Addison, like many an author before and since, dependent on his wits, projected many enterprises, and among them a translation of Herodotus, in regard to which he corresponded with the publisher, Tonson. Thus, whenever free to obey inclination, we find him reverting to a scholar's task; and perhaps the most truly characteristic of his writings, previous to the *Spectator*, are the Latin verses included in the "*Musæ Anglicanæ*;" these appeared in 1699 and attracted notice abroad; it has been remarked that they give a foretaste of that peculiar humor which is the charm of his English essays. No appropriate office being vacant, Lord Somers secured a pension of three hundred pounds a year for Addison, to enable him "to travel and otherwise qualify him to serve his majesty." This opportunity to verify his classical associations by a visit to Italy, to acquire the French language by a residence at Blois, to study the manners and customs, the scenery and society of Europe, with his ripe intellect and enriched memory,—was invaluable to Addison. To its influence we can trace an increased facility of expression, a more wide range of sympathy, and a disciplined habit of observation, which, subsequently, made him so apt and attractive as a critic of most things at home. Especially did this foreign experience yield him materials for comparison; he carried from the continent many delightful recollections and suggestive themes. That favorite hymn commencing

How are thy servants blessed, O Lord,
How sure is their defence,

was inspired by devotional gratitude for his providential escape from shipwreck, during a storm off the coast of Genoa. He was the earliest English writer who describes the curious little republic of San Marino. He obtained, while at Rome, the illustrations of his interesting "*Dialogue on Medals*;" his "*Remarks on Italy*" were another fruit of his tour. They are the notes of a scholar rather than of a poet; and ignoring for the most part the associations of modern literature and the traits of contemporary life, he expatiates on the local descriptions of some of the Latin authors, on the ancient manuscripts of the Vatican, and the classic and saintly memorials elsewhere. In addition to this prose volume of travels, Addison published a versified epistle to Lord Halifax, in which many very felicitous are blended with a few quite commonplace lines. He received information in Switzerland, that he was appointed

envoy to Prince Eugene, then prosecuting the war in Italy; but his political friends lost their influence with the death of William. Addison had enjoyed but a single annual payment of his pension; and, although he contrived to see part of Germany, before arriving in Holland, in the spring of 1703, he was obliged to accept the office of travelling tutor, and at the close of the year, found himself at home with few resources save what his portfolio contained. Unpromising as his prospects seemed at this crisis, to the retrospective observer it must ever be a relief to behold Addison in the prime of his life and his mind, thus thrown by the force of circumstances upon the career of authorship. He had gained little by enlisting under the banners of a party; patronage had chilled his mental glow; and whatever the years thus shackled had done for his own improvement, they yield but a meagre evidence of literary productions. But Addison had not been idle during his absence. While in France he wrote the tragedy of "*Cato*;" while detained on his passage across the Alps, he drew that graceful picture, the best of his poems, "*The Letter from Italy*;" in Germany he prepared the "*Dialogue on Medals*;" and the "*Remarks on several parts of Italy*" had been forwarded for publication before his return. During this latter period, also, Addison had formed the acquaintance of many individuals of rank and learning on the continent, and his correspondence indicates intimacy with diplomatists. With this increased knowledge of the world, however, he had not conquered a natural shyness of disposition; and the club-system in London proved a singular advantage to him, by, in a manner, forcing him into habitual and unconventional contact with men capable of advancing his interests as well as promoting his social enjoyment. At the epoch in question many of the whig gentry were members of the Kitcat club; and his literary reputation, capacity for business, and excellent moral qualities, soon gained for Addison the high esteem of his discerning contemporaries. When the victory of Blenheim was exciting a thrill of national joy and pride, the lord treasurer Godolphin mentioned to Halifax his desire that Marlborough's fame should be enshrined in verse; the former seized the auspicious moment to call attention to Addison's talents, not only as a poet, but a man of sagacity, prudence, and efficiency in public business. This hint gave birth to "*The Campaign*"—one of the most popular and successful occasional "copy of verses" ever written—although, according to our modern critical standard, they are utterly destitute of inspiration; and are memorable among the curiosities of literature, chiefly because of one remarkable simile, and as having procured the first of a series of profitable appointments for the fortunate bard. Addison was successively one of the five commissioners of appeal of the excise, under-secretary of state, and secretary to the ambassador to the elector of Hanover. In 1708 he entered

parliament as member for Lostwithiel and subsequently for Malmesbury, which, by 6 elections, he continued to represent from 1710 during the remainder of his life. His one attempt to address the house and his loss of self-possession, is a traditional anecdote; but it is probable his services as a conscientious business member more than atoned for his failure as a parliamentary orator. In 1709 Addison became the secretary of Wharton, lord lieutenant of Ireland, and keeper of the records; although he remained in London during the greater part of his official term, he made a most favorable impression upon the eminent citizens of Dublin, as is evident by their letters. During the seven years he was thus engaged, Addison seems only to have published an occasional pamphlet elicited by the political exigencies of the moment; one of these that appeared anonymously, was entitled "The Present State of the War;" he also wrote the lyrical parts of the opera of "Rosamond" and the prologue to Steele's comedy of the "Tender Husband." Toward the close of his term as Irish secretary, he frequently contributed to the "Tatler," also the enterprise of his friend Steele. Thus was he gradually won to the sphere of usefulness and independent mental labor, whence arose his true fame. A tory administration succeeded, and, instead of political he wrote literary papers: afterward he assisted Prior in the "Whig Examiner," and composed an allegorical tract—"The Trial and Conviction of Count Tariff." These successive offices and political writings are now only interesting as indicative of the employments, and landmarks in the career of Addison; they do not appear to have developed any of the salient phases of his mind or the characteristics of his disposition. His fortunes rose and fell with the alternations of party; he wrote according to the dictates of patrons, and went through a round of technical duties for a specific remuneration. Social advantages, opportunities of usefulness, and the good opinion of prominent men of the day, were, indeed, some of the redeeming fruits of these years of official service. He has been charged, in the cavillings of partisan zeal, with carelessness and incompetency, but the evidence of his fidelity and aptitude may be found in the satisfaction expressed by his leading correspondents, in his constant employment, and the general esteem of which he was the unchallenged recipient. Toward the close of 1710 Addison entered upon the vocation of a periodical writer—an enterprise which was the means of his peculiar usefulness as a man of letters and of his subsequent fame. Although De Foe had originated a journal which transcended the mere news-gazettes and political mediums previously in vogue, and discussed questions of social and popular interest, Sir Richard Steele first gave to this class of publications the genial and instructive character which rendered them so eminently attractive. A schoolfellow of Addison, he cherished for him a life-long friendship, and, when he projected the "Tatler," in

1709, easily obtained from him a contribution by writing to Dublin, where the future essayist was then officially residing. It does not appear that Addison was prompted to this exercise of his powers by any conviction that therein consisted their peculiar scope, but rather with a desire to assist his friend and promote a congenial literary experiment. It is none the less true, however, that this accidental contribution to the "Tatler" was the landmark in Addison's career that signalizes his most individual and efficient activity. By degrees, in the intervals of official duty, he regularly wrote for his friend's paper, which at the outset combined an epitome of current news, with an essay. The latter grew in the estimation of readers, and yielded more and more interest to the authors. In the "Tatler" we can easily trace the development of this charming feature in English literature, since become one of its most characteristic triumphs, and also perceive how the somewhat academic reserve of Addison expanded under the tempting anonymous colloquy with the public, into the ease, grace, and spirit of the best conversation. On his return to London and emancipation from public office, he earnestly coöperated with Steele in establishing and carrying on the "Spectator," a weekly paper, now one of the classics of the language, the first number of which appeared on March 1, 1711. This work forms an epoch in literary history, and in that of the periodical press. It was a style of writing and means of usefulness singularly adapted to the talents and the disposition of Addison. Through it he became a lay preacher, a popular critic, a graceful moralist, and a genial philosopher, such as he now is in the retrospect of so many readers. His remarks on Milton's *Paradise Lost* awakened his countrymen to a just appreciation of that sublime work; his character of Sir Roger de Coverley, embalmed and transmitted the English country gentleman in all the quaintness and charm of benign eccentricity; his comments on the social absurdities, conventional errors, and infraction of minor morals in his day, produced a salutary reform; and the affable yet correct style of his writings, for the first time, gave that popular impulse to literature which made it alike welcome in the circle of fashion and by the humble fireside. The urbanity and wit of Steele made him an admirable coöperator in this good work; never were mutual labors more efficient; the man of the world, the jovial companion, the fastidious scholar, and the humorist, alternately and sometimes simultaneously appear in the pages of the *Spectator*; by a felicitous invention, the talk at a club and the character of a good-hearted squire, are made to illustrate the manners and the morals of the day, to excite curiosity, elicit wit, give room for description, and hint important truths;—all in the serene tone of good-fellowship and under the spell of familiar associations. A graceful zest is attached to the best of these papers unknown before in the mission of the pen—too often debased

by partisan ferocity or rendered obnoxious to the multitude by pedantry. In a few instances Addison rose to the level of imaginative creation, or probed the works of genius with analytical skill—as when he unfolds “the Vision of Mirza,” guides us through Westminster Abbey, discusses the pleasures of the imagination, or the sublime flights of the Miltonic muse; but the special merit and charm of the Spectator was its harmless vivacity, its winsome tone whereby it initiated a more pure and a more popular style of writing, and laid the foundation, both in public taste and in the practice of authors, of that comprehensive order of essayists who have made periodical literature a vast agent of opinion and means of culture. Much, therefore, of the interest that belongs to Addison is historical; yet to a just sensibility his image is one of the most grateful in the whole gallery of English authors, because it is so intimately associated with the origin of what may be called the enjoyable phase of literature, with the triumph of good sense and good feeling over acrimony and perversity in journalism, with the advent of the literary gentleman and humanitarian, and with the permanent recognition of simplicity, directness, and purity of diction. Addison’s tragedy of “Cato” was produced in the spring of 1713; its immediate success, owing to the political significance attached to it by the whigs, to the zeal of friendship, and to the existent standard of dramatic taste, was far beyond its merits as an acting play, or its power of characterization, if judged by the Shakspearian rule: but to its original audiences, “Cato” had the prestige of the “great Mr. Addison’s” name; one party recognized in the drama a new assertion of popular rights, while another identified the character of Cæsar with that of Marlborough; to both, therefore, it carried the appeal of patriotism. The “run” which “Cato” enjoyed, the tributes it elicited from the authors and statesmen of the day, and the eclat attending its production, may be thus accounted for by local and political, as well as personal causes, independent of its literary merit; this consists chiefly of an even and sustained, always dignified and sometimes solemn diction; its moral reflections, too, are impressive and its tone elevated. It is chiefly remembered now by the dying soliloquy of the hero,—long a favorite piece for declamation; but, as a whole, it is too formal and frigid to excite sympathy. After the death of Queen Anne, Addison again held office, first as secretary to the lord justices, who, chosen by the elector of Hanover, had assumed the government; then, for a while, his former post under the lord lieutenant of Ireland, and, in 1715, one of the lords of trade; the same year was acted the “Drummer,” or the “Haunted House,” which, though credited to Steele, was partly if not wholly written by Addison. In a paper called the “Freeholder,” for several months the latter defended the Hanoverian succession. In

August, 1716, Addison, then in his 45th year, married the Countess of Warwick; after 15 years’ widowhood, she forfeited her jointure by espousing the poet; her marriage portion being thus reduced to Holland House, where they took up their abode. This proved an unfortunate connection; the proud and high-tempered dowager made the home of her gentle and fastidious husband so comfortless that he sought refuge at the club and the tavern; such is the excuse, cited by all his biographers, for a tendency to intemperance, which is said to have marked his later years. On the accession of a new ministry, in 1717, Addison was appointed a secretary of state with Sunderland; but menaced by a powerful opposition headed by Robert Walpole, anxiety increased the pressure of physical decay, and Addison resigned in 1718, retiring with a pension of fifteen hundred pounds a year. A chronic asthma terminated in dropsy, and Addison expired in a most resigned and devout frame of mind, at Holland House, after having completed his forty-seventh year. He was buried in the Poets’ Corner of Westminster Abbey. His friend and former secretary, Tickell, wrote a memorable elegy. Pope, Steele, and all the literary and social celebrities of the day, united to do honor to his memory, and from the period of his decease to the present hour, English writers of discernment, sympathy, and taste, have confirmed the verdict of his illustrious contemporaries. Few men of letters ever passed through a life of such political vicissitude with so few enemies. The casual estrangement of Steele and the satire of Pope in the end but served to illustrate the strong hold Addison had upon their respect and love. Dryden in England and Boileau in France hailed his literary advent; Swift praised his “use of wit” as exemplary, while he sneered at his literary recognition of the claims of woman; Lady Montague declared his conversation fascinating and instructive; Chesterfield commended his modesty and Pope his whole character, even when he assailed it with the shaft of irony. Of his verses the most genuine and individual are his “Hymns,” which are still among the favorite devotional melodies; of his prose, the periodical papers that continue, in many respects, to serve as illustrative models of colloquial tact and humorous zest; thus his versification of one of David’s most eloquent psalms, and his character of Sir Roger de Coverley, survive in the affections of this generation, while the “Dialogue on Medals,” the translations from Virgil, and the Latin poems, continue to interest the classical scholar. It is as the leading spirit of the old British essayists that Addison is most frequently quoted, referred to, and cherished in libraries. The anecdotes of his life are patent; his recourse to Button’s coffee house, where his reserve was often “thawed by wine,” and his “giving an opinion” the charm of the hour to all the “wits about town;” the patronage of states-

men, the late bestowed hand of a proud countess and his subsequent domestic infelicity, his dying words to his dissipated young stepson, and his craving unrequired forgiveness from the weeping Gay, his college walk, his portrait at Holland House, and his funeral slab in Westminster Abbey, are familiar to the fond associations of all lovers of English lettered genius. Addison may have sometimes repelled sympathy through his cautious reserve; he may have yielded, too readily at last, to the convivial habits of his age; he may have aspired too constantly to the elegance of luxury and the emoluments of office, to preserve intact that "hero worship" which the lover of his character and writings would fain cherish, but these blemishes are all which even the traditions of a partisan age hint; of meanness, envy, ingratitude, and all the baser weaknesses of humanity, he seems to have been incapable. Although political disappointment, an injudicious marriage, and declining health, threw a cloud over the last days of this accomplished and beloved writer, one of his last works was a perspicuous and able treatise on the "Evidences of Christianity," since superseded by more complete expositions, but of great utility at the period of its publication. The fortitude and faith which attended his tranquil departure have been celebrated as appropriate to the closing scene of one who living had been so delightful a censor and genial an oracle in letters, manners, and opinions.

He taught us how to live—and oh! too high
The price of knowledge—taught us how to die.

His character and writings have instructed and charmed a greater variety of minds than those of any of his contemporary authors. Swift's satire and coarseness were repulsive to the amiable and refined, Berkeley's theories too visionary to be popular, Steele's disquisitions too unlearned for scholars, but Addison then as now attracted young and old, erudite and superficial, by the play of his humor and the ease and finish of his style. The philological Hurd, the gentle Gay, the pure-minded Lucy Aikin, the dogmatic Johnson, and the brilliant Macaulay, seem equally alive to the worth and beauty of Addison.

ADEL, a district of eastern Africa, inhabited by a race called Berbers or Somanlia. The chief town is Zeila, lat. 11° 18' N. long. 48° 8' E. The inhabitants are enterprising traders, own several ships, and carry on commerce with the Arabs of the opposite coast, who introduce Indian commodities in exchange for spices, slaves, and horses.

ADELAAR THE EAGLE, the surname given on account of his gallantry, to an admiral of the name of Severtsen, born at Brevig, in Norway, in 1622, and died at Copenhagen in 1675. He rose from the position of a common sailor, in which capacity he served from 1637 to 1643 in the Dutch service under Van Tromp, to the rank of admiral, first in the Venetian, and afterward in the Danish service. It was at

the time of the wars waged by Venice against the Turks that Adelaar gave a striking evidence of his daring spirit by fighting his way in 1654 with the ship, to the command of which he had risen by his skill, through 67 Turkish galleys, sinking 15 of them with 5,000 Turks on board, who all perished. For this brilliant exploit Venice conferred upon him the order of St. Mark, the title of lieutenant-general of the admiralty, a pension, and other tokens of regard, and all naval powers were anxious to secure his future services. But in 1666, after returning for a short time to the Dutch navy, in which he had begun his career, Adelaar accepted employment under the Danish government, which appointed him member of the board of admiralty and commander-in-chief of the Danish fleet just about to act against Sweden. Death overtook him before it sailed.

ADELAIDE, the capital of South Australia, on the river Torrens, near its mouth, on the gulf of St. Vincent. It was founded in 1836, covered 1,000 acres in 1843, and contained 20,000 souls in 1855. In 1852, an assay office was opened; and a chamber of commerce, insurance companies, banks, a government house, churches, barracks, and a theatre, have all been established. In 1849 the collegiate school of St. Paul's was incorporated, and in 1852 there were 27 public schools. In 1853, 412,066 ounces of gold were brought there by the overland escort, valued at £1,462,586.—PORT ADELAIDE, 6 miles N. N. W. of the town, communicates with it by a railroad. It is a free port, and the centre of commercial prosperity to the colony. The increase of trade at this port is one of the great examples of sudden growth which modern times exhibit. The harbor will float vessels drawing 18 feet, and North Ann Harbor, to be connected with it by rail, has a much greater depth.

ADELAIDE, marchioness of Salisbury, a lady of the court of king Edward III. of England. The king was much taken with her charms. Once at a ball, after he had been dancing with her, he picked up one of her garters which had fallen off in the dance. The lords and ladies laughed, but Edward buckled the garter around his knee, and said, *Honi soit qui mal y pense*—"Evil be to him who evil thinks." From this incident it is said the order of the knights of the garter arose.

ADELAIDE, of Brandenburg (ADELHEID), wife of Frederick III. count palatine of Saxony, distinguished for her beauty, but infamous for her guilty passions. She was consumed with love for Ludwig the Leaper, margrave of Thuringia, and was the means of having her husband assassinated. Ludwig atoned for his crime by a long captivity in the castle of Giebichenstein, near Halle, from which, so runs the story, he only saved himself by a frantic leap into the Saale. Adelheid feigned sorrow for the death of her husband, but three years later married his murderer. Her declining years, when the fires of youth and beauty had burnt themselves out,

were devoted to repentance and mortification. She founded the convent Zscheiplitz, near Freiburg, took the veil, sought to atone for her crimes by fasting and flagellations, and died there 1110.

ADELAIDE, AMALIA LOUISE THERÈSE, daughter of the duke of Saxe Meiningen, born Aug. 18, 1792, died 1849, queen of William IV. of Great Britain, whom she married in 1818, when her husband was yet duke of Clarence. After her accession to the throne she was but once brought prominently forward in political affairs. In the ministerial crisis of 1834, she was thought to have caused the dismissal of the liberal cabinet. On the death of her husband the British Parliament allowed her the munificent annuity of £100,000 per annum, and gave her Bushy park as a residence. Her will enjoined her burial in the simplest possible mode, as befitting a plain Christian gentlewoman.

ADELAIDE, EUGÈNE LOUISE, princess of Orleans, daughter of Louis Philippe Joseph, duke of Orleans, nicknamed Egalité, was born at Paris, Aug. 25, 1777, and died in that city Dec. 31, 1847. In 1791 she travelled to England. On her return in Nov. 1792, she found herself proscribed as an *émigré*, and fled into the Austrian Netherlands, then in the occupation of the French army of the north, putting herself under the protection of her brother, the young duke of Chartres, afterwards Louis Philippe, who was commanding a division of that army. Her brother was soon compelled to take flight himself to escape the guillotine, and she was conducted over to the Austrian advanced posts. She rejoined her brother after many perils in Schaffhausen, Switzerland, May 26, 1793, accompanied by Madame de Genlis and M^{lle} de Cercey, the niece of the latter. She next took refuge in a convent, but in a few months their money ran short. M^{lle} d'Orleans then threw herself upon the protection of her aunt, the princess Conti, who was living at Freiburg. Her aunt dared not receive her in her own house, as the prejudice against the name of Orleans was so strong among the royal family of France, but she put her and De Genlis to board in a Swiss convent. After a separation of 10 years she saw her mother once again at Figuières. After some further removals she at length rejoined her brother at Portsmouth, England, in August, 1809. Having spent some months in England, they betook themselves to Palermo, where the duke of Orleans was about to marry the daughter of the king of Naples. From that time until the restoration, she lived with her brother in Sicily. When Louis XVIII. had to quit France once more, she again followed her brother in his exile. After the revolution of July, 1830, she urged him to accept the throne. Madame Adelaide, as she was now always called, was a great politician, and had much weight with the late king of the French. She died two months before the dynasty of Orleans fell.

ADELAIDE, PRAXEDA, a Russian princess,

and widow of Otto, margrave of Brandenburg, became second wife of the Emperor Henry IV. She drew upon herself his abhorrence to such a degree, that he maltreated her in the grossest and most shameful manner. At last he threw her into a wretched prison, from which she was fortunate enough to make her escape. She went to Italy, and put herself under the protection of the countess Matilda, who recommended her to the pope. Pope Urban II. espoused her cause, and at the council of Piacenza, in 1095, gave her permission to make a complaint against the emperor. She accordingly narrated to the venerable fathers of the church all the indignities that had been put upon her. She died in a cloister, where she took refuge to bury her shame from the world.

ADELBURNER, MICHAEL, mathematician, born at Nuremberg, Feb. 3, 1702, died June 21, 1779. His claim to lasting fame resides in his having started, 1735, a "Journal of Astronomy," announcing the principal celestial phenomena, and analyzing new publications. This journal enjoyed much reputation in its day. Thirty-four numbers were published, when in 1740 it was discontinued.

ADELGRIEF, JOHANN ALBRECHT, a German prophet, born in the environs of Elbing, died Oct. 11, 1636. He was the son of a Protestant minister, and well skilled in the ancient languages. He pretended that seven angels had come down from heaven and given him the commission to banish evil from the world, and to scourge the monarchs with rods of iron. He was arrested at Königsberg, accused of witchcraft, and condemned to death. All his writings were suppressed.

ADELNAU, a district in the Prussian province of Posen, containing 867 square miles of territory, and 52,530 inhabitants. It abounds in game and fish, but is scantily supplied with corn and cattle.

ADELON, NICOLAS PHILIBERT, a French physician, born at Dijon, Aug. 20, 1782. He received his degree of doctor in 1809. For this degree he wrote a thesis on the functions of the skin. In 1818, he published, anonymously, an octavo volume, analyzing Dr. Gall's lectures on phrenology, or the anatomy and physiology of the brain, the proof-sheets of which were seen and corrected by Dr. Gall himself. He was the pupil and friend of Chaussier, and one of the editors of the *Biographie universelle*, the *Dictionnaire des sciences médicales*, and Panckoucke's great *Dictionnaire de médecine*, in 20 vols., published 1819-1821. He also published in concert with Chaussier, a Latin edition of the works of Morgagni, *De sedibus et causis*, 8 vols. 8vo., 1822. In 1828 he published a work on human physiology (*Physiologie de l'homme*, 4 vols. in 8 vo), a second edition of which appeared in 1829. The work was deemed good at the time, but is now out of date, as the science of physiology has since been very much developed. In 1824 Dr. Adelon was admitted as an

associate (*agrégé*) of the newly-reorganised faculty of medicine in Paris, and at the death of Royer Collard in 1836, he was installed in the professorial chair of medical jurisprudence (*medecine legale*), which he still holds.

ADELSBERG, a market town in Carniola, in the neighborhood of which is situated the celebrated grotto of Adelsberg. One portion of this cave, 858 feet in length, has been known for several centuries. A new grotto was discovered in 1816, containing interesting stalactites, particularly one called the "curtain," a white semi-transparent wall. The cave terminates in two passages, at the extremity of one of which is a lake. In the vicinity is the Magdalen grotto, also renowned for its stalactites.

ADELUNG, JOHANN CHRISTOPH, German lexicographer, born Aug. 8, 1732, at Spantekow in Pomerania, died at Dresden, Sept. 10, 1806. He was the son of a clergyman at the former place. He finished his studies at the university of Halle, and went to Leipzig, supporting himself by translations of valuable foreign works. His *Glossarium manuale ad Scriptores medicos et infima Latinitatis* (Halle 1772-84) founded upon the previous labors of Ducange and Charpentier, is his most respectable achievement in this department. His great work, for which he took Johnson's dictionary of the English language as a pattern, is his *Grammatisch-kritisches Wörterbuch der hochdeutschen Mundart* (Leipzig, 1774-1786). This dictionary is superior to Johnson's in the meaning of words and their derivation, but is inferior in the citation of authorities. He looked with horror upon the flood of new words which was sweeping into the German language. This exclusiveness crippled the plan of his work very materially. He also produced other works of a kindred nature, *Deutsche Sprachlehre für Schulen*, Berlin, 1781, and *Umständliches Lehrgebäude der deutschen Sprache* (Leipzig), 1782. In 1787 Adelung was called to Dresden, and appointed head librarian to the electoral library in that city, in which occupation he continued till his death. He was fascinated by the unworked deposits of Saxon antiquities and history which he found there, and several profound works were the result of his studies. He returned to his early predilections for philological inquiries, and conceived the plan of his *Mithridates*, a work which was to contain an account of all the known languages of the earth, with a translation of the Lord's prayer given as a specimen of each. He only lived to finish the 1st volume, which gave an account of the Asiatic languages. The work was afterwards taken up by Johann Severin Vater, and his own nephew Friedrich Adelung, and finished in 4 volumes. It is said he devoted 14 hours a day to study. He was never married, and left no children.—FRIEDRICH, Russian councillor of state, nephew of the former; born at Stettin, Feb. 13, 1768, and died at St. Petersburg, Jan. 1843. He began life as a private tutor; then went to Rome, and edited some German poetical remains which he found in the library

of the Vatican. Next he became private secretary to the Count Pahlen, and followed him to St. Petersburg. He was appointed by Maria Fedorowna to give lessons to her two younger sons, Nicholas the late emperor of Russia, and Michael, afterwards king of Poland. He gave great satisfaction to the empress mother, and she bestowed on him the charge of her private library. He is the author of a comparison between the Sanscrit and Russian languages (1815), the biography of Baron von Herberstein (1817)—one of the earliest travellers in Russia, and the biography of the Baron von Meyerberg, who was sent to Moscow by the Emperor Leopold I. in 1661 (1827). His last work was an essay on Sanscrit literature (1830). Most of his productions were published at St. Petersburg in German.

ADEN, a town of Yemen, one of the two great divisions of Arabia, on the coast of the Indian Ocean, nearly due east of the entrance of the Red Sea, lat. 12° 40' W. long. 44° 48' E. and was formerly an opulent city, but is now much decayed. It is situated on the east side of a peninsula, consisting chiefly of volcanic rocks, and connected with the mainland by a low, sandy neck. Its aspect is dreary in the extreme; not a trace of vegetation; and the heat is overpowering. The climate, however, is healthy. As a military position, it controls the Red Sea. Since the British took possession it has been made a free port, and its trade is rapidly increasing; being equally distant from Bombay and Suez, it is admirably adapted for a coal depot, and steamers can at all seasons take in and discharge cargoes in safety. On the north and west sides of the town rises a lofty eminence, where the remains of old Turkish fortifications are still visible. In the 16th century the Portuguese took possession of the town, but were expelled by the Turks in 1588, who finally relinquished their conquest when the sultan of Sennaar incorporated it under his authority. In 1889 the British captured the town, having first vainly sought reparation for an outrage committed upon a ship under English colors.

ADEPT, this term was applied in alchemy to one who had penetrated into the mysteries of the science of making gold, and had discovered the philosopher's stone. Paracelsus and other fanatics also called themselves adepts, because they believed themselves to be in possession of some particular science. A man is now called an adept, in a similar sense, when he is perfectly master of the mysteries of a science, an art, or a sect.

ADERSBACH ROCKS, a remarkable range of mountains, in a valley of the Riesengebirge in the district of Glatz, in Silesia. For several miles it is divided into detached perpendicular columns by fissures from 600 to 1,200 feet in depth. Geologists suppose it to have been of tabular sandstone, of varying degrees of hardness, and that the softer portions, lying in upright seams, were gradually washed away by the action of water.

ADET, PIERRE AUGUSTE, chemist and politician, born in Paris, 1768, died about 1882. After holding several public positions under the republican government, he was sent by the directory to the United States as minister plenipotentiary. In 1796 he presented to congress a tri-color flag in behalf of the French nation, and in the following year delivered to the secretary of state the celebrated note in which the directory complained that the American government had violated its neutrality, and had broken the treaty of 1778. After the delivery of this note Adet announced that he should suspend his functions, and he accordingly returned to France. After the Napoleonic *coup d'état* of the 18th Brumaire, he was called to the tribuneship, which he quitted in the month of March, 1803, only to become prefect of the department of Nièvre. He was elected member of the senate May 2, 1809, but took no active part in its debates. The only occasion on which he was induced to make his appearance on the tribune, was for the purpose of presenting his colleagues a work by his friend Bouffey, on the influence of the air in diseases. Called to the chamber of deputies in 1814, he sat among the constitutionalists. On the return of Napoleon he gave in his adhesion to him. Adet composed a new system of chemical signs, in which he was aided by Hassenfratz, but it has found little favor with the scientific world. He translated several English and American books, and was the author of an elementary work on chemistry (1804). He was an industrious contributor to the *Annales de chimie et de physique*.

ADHESION, in physical philosophy, usually signifies the force with which a liquid clings to the surface of a solid and wets it, but it is also used to signify the force with which two smooth surfaces of a solid cling to each other. Careful experiments have been made upon this subject by many philosophers, and the most intricate calculations gone into, especially with regard to "capillary attraction," or the adhesion of a fluid to the inside of a small tube by which it is drawn up the tube. Adhesion is supposed by some to be a phenomenon of chemical affinity, arguing from the fact that mercury adheres most strongly to those metals with which it readily amalgamates; others consider it a variation of "cohesive" attraction. The force with which adhesion brings two fluids together upon the surface of a solid, often produces intense chemical action, as is shown in the effect of filtering bog water through gravel, and thus bringing it into contact with air on the surface of the little stones; also in the change of diluted alcohol into vinegar, by draining it over shavings of wood; and most strikingly in the inflammation of hydrogen gas by passing a stream of it upon spongy platinum.

AD HOMINEM, a Latin phrase, naturalized into the modern European languages. A speaker is said to make an appeal *ad hominem*, or to make use of an *argumentum ad hominem*, when

he cites some personal act or speech of the individual whom he is apostrophizing or replying to, which condemns out of his own mouth that individual's present actions or words, or which shows that his present position is inconsistent with the one he had assumed before.

ADIAPHORA (Gr. *ἀδιαφόρα*, indifferent). The Stoics distinguished all the objects of human pursuit into three classes. Virtue, wisdom, justice, temperance, and the like, were denominated good; their opposites were bad. But beside these there were many other objects of pursuit, such as wealth, fame, &c., of themselves neither good nor bad. These were thought therefore in ethics to occupy neutral territory, and were denominated *adiaphora*. This distinction amounted practically to an exclusion of the *adiaphora* from the field of morals, and included those things to the performance or pursuit of which men must be urged by other considerations than duty. Through the teachings of Epictetus, a later disciple of the same school (A. D. 100), this distinction was introduced into Christian ethics, and made to cover a class of actions of which, although they had to do with religion, the moral law had no cognizance. This supposes that there are actions requiring the exercise of reason and judgment, which have no relations to moral character and destiny. The propriety of the distinction in Christian ethics has therefore been vehemently contested, on the ground that the moral law has a universal scope and application, and that in the strict sense, all possible human actions have a moral character. The distinction is therefore denied an objective existence in the actions themselves, while it must be admitted, that according to the deficiency in each man's individual apprehensions of the moral law, the *adiaphoristic* distinction will always have a subjective existence, but an existence which, like a dissolving view, is progressively fading, to give place to the bolder outlines of determinate knowledge. An attempt to force the *adiaphoristic* distinction in Christian ethics, has given rise to two important controversies, which deserve notice. In 1547, Charles V. of Germany caused to be drawn up an article known as the Augsburg interim, for the temporary government of ecclesiastical matters until a general council could be called (the council of Trent). The interim gave much dissatisfaction, both to the Catholic reform party and to the more moderate reformers. At the instance of these dissatisfied elements, Melancthon drew up what is denominated the Leipsic interim. This interim, designed at once to reconcile the two great contending parties, and to protect the Protestant interests, availed itself largely of the *adiaphoristic* distinction. Under the head of *adiaphora* it conceded, from the Protestant side, the jurisdiction of the Roman bishops and most of the forms of the Roman Catholic worship, while, on the other hand, the Roman Catholic party were induced to accept the Protestant formu-

lary of justification when shorn of the exclusory *sola fide*, on the ground that it might be regarded as an *adiaphoron*. The publication of the Leipsic interim was the signal for the commencement of the first adiaphoristic controversy, in which Matthew Flacius of Albona was a prominent leader. He violently assailed what he deemed the temporizing policy of the interim, and asserted that the things conceded were not adiaphora, because they yielded to an improper authority, the state, the power to dictate in religious matters. Melancthon and his party justified themselves on the ground that the adiaphora were things neither ordered nor forbidden in the Scriptures, but introduced by the church in the outset, as matters of convenience, and might therefore be continued at pleasure, without sin. This first adiaphoristic controversy was mainly quieted by the Augsburg peace (1555); the second diaphoristic controversy was waged 200 years later, and comes properly under that theological movement denominated Pietism.

ADIGE, a river of northern Italy, which rises in the Tyrolean Alps, flows in a southeasterly direction, and empties into the Adriatic sea. It forms the boundary between Lombardy proper and the old Venetian territories.

ADIPOCIRE (Lat. *adeps*, fat, and *cera*, wax), a product of the decomposition of fleshy matters. It bears a close resemblance to spermaceti. It is formed from bodies buried in moist earth, and especially when these are accumulated for years in great numbers. On the removal of the *cimetière des innocens* in Paris, in 1787, where thousands of bodies had been buried annually for several centuries, it was found that those bodies which had been placed in great numbers in the trenches, were, without having lost their shapes, converted into this substance. It is a chemical composition, according to M. Chevreul (*Recherches sur les corps gras*) of margaric acid in large quantity, and a small quantity of oleic acid combined with a little ammonia, potash, and lime.

ADIPOSE (Lat. *adeps*, fat), a term applied both to the fatty substance of animals and the membrane or tissue containing it.—ADIPOSE SUBSTANCE, or fat, is a compound of two solids and one fluid, which are easily separated, the solids from the fluid, from the alcoholic solution, or mechanically by pressure. The solid substances are stearic and margaric acids, and the fluid elaine or oleine. According to the relative proportions of the solid and fluid constituents of fat, it is of a more solid or fluid consistence, and melts at a higher or lower temperature. In the cetacea the fluid element predominates, and the adipose substance is, at ordinary temperatures, an oil. By the natural warmth of the body (which indeed is probably produced by the chemical oxidation of this carbonaceous substance and its conversion into carbonic acid gas), it is more fluid in the living than in the dead subject. In connection with the tissue which contains it, it is generally called suet; sep-

arated from this, it is tallow. That of the human body is white and transparent in youth, becoming yellow in aged persons. When purified it is white, inodorous, and of a mild, insipid taste. It is lighter than water, and inflammable. Unlike most animal substances, it contains no nitrogen. Its ultimate elements are carbon, hydrogen, and oxygen.—ADIPOSE TISSUE is the membrane that contains the fatty particles, or rather which separates and keeps apart these particles, which are of polygonal and reniform shapes, and of microscopic size. When this membrane is perforated, the oily substance contained in little sacks or bags within the tissue walls flows out, but none escapes from it if its substance is uninjured, even if placed in warm water. It is therefore this tissue that gives form and consistence to the animal fat, and prevents it from passing at random from one part of the body to another. The inner particles contained in the vesicles differ in size and form in different animals. In man they are polygonal, and measure from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch in diameter. In insects they are spherical, and do not exceed $\frac{1}{16}$ of an inch. In the sow they are kidney-shaped, and from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch. Fat is believed to be produced directly from the blood, branches of the arteries and veins running between the adipose masses, and its materials being all found in this fluid. The oily principle, however, may be derived from the chyle. The distribution of fat throughout the body is very irregular, and its quality varies somewhat with the part containing it. There is usually a layer beneath the skin, and it sometimes collects in large masses between this outer integument and the abdominal muscles. It accumulates in certain parts, from which it is never absent in any condition of the body, and in other parts it is never found, however great the accumulation elsewhere. One of its offices, as already suggested, appears to be to supply the system with the materials for producing animal heat. During the period of hibernation of animals, it is slowly consumed, and disappears like oil in a lamp. Another purpose is probably the secretion of matters which, in the derangement of the other organs for removing them, might accumulate to such a degree as to endanger life. In man, and in other animals also, this secretion, which moderately taking place indicates health, sometimes goes on with extraordinary accumulation, indicating diseased action. Two cases are recorded of men attaining, by the deposition of fat, the extraordinary weight, one of 580, and the other of 600 pounds. Other cases are known of 448, 480, and 500 pounds, respectively. The tendency to unusual accumulations of fat requires to be early guarded against when observed, and carefully treated. Active and long-continued bodily exercise tends more than any thing else to keep the organs which deposit this substance in healthy action, and intense mental labor is sure to prevent its accumulation. In the new-born infant the adipose

matter is mostly just beneath the skin. It gives the plumpness and rotundity of outline to its little limbs. As age advances it collects in various other parts of the body, internal as well as near the surface. In old age it gradually disappears, soonest leaving the external parts, which contract into lean and flaccid forms, and the last that remains is in the very substance of the internal organs. The natural constitution and habits of the individual all have their influence in accelerating or retarding the accumulation of this substance. Some families for succeeding generations have a natural tendency to obesity, others to spareness of form. A certain diet will in some persons produce corpulency, while in others it will have no such effect. A cheerful temperament is highly favorable to the secretion of fat, while anxiety of mind and irritation of temper may lead to its rapid absorption.

ADIRONDAC MOUNTAINS, the principal group of mountains in New York, extending from the extreme N. E. corner of New York, in a S. S. W. direction toward the centre of the state, occupying portions of Clinton, Essex, Franklin, and Hamilton counties. The Catskills, south of the Mohawk river, may be regarded as their extension in this direction. In the western part of Essex county these mountains have their greatest development, and present the highest peaks of any of the northern spurs of the Appalachian chain, Mount Washington in New Hampshire alone excepted. They rise from an elevated plateau, which extends over this portion of the country for 150 miles in latitude, and 100 in longitude, and is itself near 2,000 feet above the level of the sea. The highest summits are those of Mount Marcy, St. Anthony, McMartin, Seward, Emmons, and McIntyre. The first of these, by a series of barometric observations, made in 1889 with great care, by Prof. F. Benedict, of the university of Vermont, is found to reach the height of 5,837 feet above the level of the sea. By observations previously made by Mr. Wm. O. Redfield and Prof. Emmons, its height was estimated at 5,467 feet. St. Anthony is supposed to be about 5,000 feet high, McMartin nearly the same, and the other two summits about 4,000 feet each. These mountains are in ranges, which have a general N. N. E. and S. S. W. direction; but being formed not of stratified, but of granitic rocks, they lack that precision of outline which characterizes the mountains of the same Appalachian system in the middle and southern states. For the same reason the peaks assume more of the conical form, the slopes of the mountains are more abrupt, and the scenery wilder and grander than among the mountains of the sedimentary rocks. The valleys necessarily receive their forms from the mountains that bound them; and though they, too, are crooked and winding to the traveller who threads his way through their wild passes, the map of the state, by the courses of the rivers, exposes the system

of their arrangement, and shows it to be the same which obtains throughout the whole chain. The Saranac and the Ausable, whose sources are among these mountains, run in nearly parallel lines towards the north-east, discharging their waters into Lake Champlain. They define upon the map the position of the valleys, and to some extent of the ranges of mountains also, even when the topography is as miserably represented as is commonly the case with our state maps. In the other direction, the Boreas, the Hudson, and the Cedar rivers, which all unite below into the Hudson, define the extension of the valleys of the Ausable and its branches on the south declivity of the great plateau; and farther west the chain of lakes, including Long Lake, Racket Lake, and the Fulton Lakes, lie in the same line with the valley of the Saranac, and mark its extension from the central elevation of the plateau towards the south-west. The drainage of this table land is towards Lake Champlain on the east, the St. Lawrence on the north-west, and the Hudson on the south. The sources of many of the streams, which flow in these different directions, often interlock with each other; and the numerous lakes and ponds with which they connect, lie almost upon the same horizontal plane. The elevations of many of these sheets of water are given by Prof. Benedict, and nearly all of them are included between 1,500 and 1,731 feet above the level of the sea, the latter being the elevation of Racket Lake. The great numbers of these lakes and rivers easily navigable to the light canoe of the Indian, with occasional portages past the rapids and falls, gave to this district in former times features of great interest. Easily penetrated in every direction, the wild solitudes of the mountains afforded no sure protection to the deer and moose, the caribou and the bear; nor could the beaver and the otter find recesses so secluded, that they could escape from the intrusion of the birch canoe noiselessly gliding among their haunts. These animals and the numerous varieties of fish, among which the salmon trout and the pike, of those excellent qualities only met with in our northern inland waters, gave to that ancient race nearly all they required for sustenance. The game, excepting the caribou, still linger about these mountains and waters; and in the summer season, hunting and fishing parties continue to penetrate their wilds. The mountains are covered with forests, groves of birch, beech, maple, and ash, succeding to the evergreens, among which the most common are the hemlock, spruce, fir, and cedar, with the valuable white pine intermixed with and overtopping the rest. In the lower lands along the streams, a denser growth of the evergreens is more common, forming almost impenetrable swamps of the cedar, tamarac, or hackmatac, and hemlock. The white pine is the most valuable product of this region; and the numerous rivers, which served as roads for reaching every part of it, now answer the same purpose for convey-

ing this valuable timber to market. So important has the pine upon these mountains become, that large sums have been expended in removing the obstructions of the streams, and in opening new outlets to the lakes, by which, in the spring freshets, the logs could be run down. As may well be supposed, this mountain region offers little inducement to the permanent settler. Along the wider bottoms of the Saranac and the Ausable, the fertile alluvial soil, the wash of the mountains, tempts to cultivation; and occasional veins of magnetic iron ore in the granitic rocks lead to the establishment of forges for manufacturing blooms at some neighboring water power. But the Adirondac mountains proper would be free of all improvements of this sort, had there not been found in the very heart of this district masses of magnetic iron ore of enormous extent, which have led to the establishment of smelting works for converting the ore into pig iron, and the building up of a small town dependent upon this manufacture.—The village of Adirondac, founded by the enterprise of Messrs. Archibald McIntyre, of Albany, Archibald Robertson, of Philadelphia, and David Henderson, of Jersey City, is situated in the township of Macomb, on the western border of Essex county. Its distance west of Lake Champlain is about 50 miles, the last 11 miles of which may be travelled upon a navigable sheet of water called Lake Sandford. On the shores of this lake and also between it and Lake Henderson, along the banks of the Adirondac river, are found enormous beds of magnetic iron ore in the hypersthene rocks, and at the junction of these rocks with the reddish-colored granite. So extensive are these beds, that their length is estimated by thousands of feet and their width by hundreds. It is now nearly 80 years since, attracted by the abundance of these ores, and the excellent quality of the iron they produced, these gentlemen purchased some 60,000 acres of land, and put up forges on the river a little above Lake Sandford, for converting the ores into blooms, and then into bar iron. From some peculiar qualities of the ores it was found difficult to manufacture wrought iron direct; and in 1848 a small blast furnace was constructed to make pig iron. In this operation great difficulties were also experienced, as it was found, from the proportion of titanium present. This prevented the separation of the iron from the cinder, so that no fluid cinder has ever been produced in the hearth of the furnace. Notwithstanding these difficulties, however, and the great cost of getting the iron to Lake Champlain, the company were induced to persevere by the excellent qualities of the metal, and their wish to supply the steel works they had built at Jersey City with this particular article for the manufacture of the Adirondac steel. In 1849, they commenced the construction of a larger furnace; and this still continues in operation; but the old works are abandoned. There are few examples of large enterprises like this undertaken in the United

States, that have been prosecuted with such steady determination in the face of extraordinary obstacles. Some of them, as the difficulties of prosecuting works remote from settlements, might be overcome in time by building up a town about the works, and the want of roads could be remedied, even if it involved the almost complete construction of them through a wilderness of 20 or 80 miles; but when to these was added the extreme difficulty, which no skill has been able to overcome, of reducing iron ores of these peculiar qualities, it certainly is a remarkable instance of praiseworthy perseverance, that these works continue in operation, and still support an oasis of civilization in the wilds of the Adirondac mountains.

ADIT (Lat. *adeo*, 'aditum, to approach), a horizontal passage made into mines for the purpose of draining them, and also for the extraction of their products at the lowest convenient level. In very mountainous regions adits often present the readiest means of access to the mineral veins known to exist in the interior of precipitous hills. Enormous sums have been expended in the silver region of Mexico in these exploring adits. One of the most famous adits in the world is that of Clausthal, in the Hartz, which is $6\frac{1}{2}$ miles long, and passes upwards of 800 yards below the church of Clausthal. Its excavation lasted from the year 1777 till 1800, and cost about \$330,000. The adit which drains the district of Gwenap, in Cornwall, is estimated with its branches to extend a distance of 80 miles; its mouth is in a valley near the sea, and from it are discharged the superficial waters of numerous mines, as also all the water pumped up in them to its level. One of the most extensive adits in the world was commenced the beginning of the present century by the Austrian government, and is called by the name of Joseph II. Its mouth is in the banks of the river Gran, and it passes by the mines of Hodritz toward those of Schemnitz. Its whole length is to be about 10 miles. The object of its construction is partly to explore for new veins, and in part to drain mines already in operation.

ADJECTIVE, a word joined to a noun to denote its qualities or incidents. Thus, in the expression, a sweet apple, sweet is the adjective qualifying the noun apple.

ADJUTANT, an assistant officer or aide-de-camp attached to commanders of larger or smaller bodies of troops. Generally every commander of a battalion of infantry, or of a regiment of cavalry has an adjutant; the chiefs of brigades, divisions, corps d'armée, and the commander-in-chief, have one or more as the importance of the command may require. The adjutant has to make known the commands of his chief, and to see to their execution, as well as to receive or collect the reports intended for his chief. He has, therefore, in his charge, to a great extent, the internal economy of his body of troops. He regulates the rotation of duty among its com-

ponent parts, and gives out the daily orders; at the same time, he is a sort of clerk to his chief, carries on the correspondence with detachments and with the superior authorities, arranges the daily reports and returns into tabular form, and keeps the journal and statistical books of his body of troops. Larger bodies of troops now generally have a regular staff attached—taken from the general staff of the army, and under a “chief of the staff,” who takes to himself the higher functions of adjutant, and leaves him merely the transmission of orders and the regulation of the internal routine duty of the corps. The arrangements in such cases, however, are so different in different armies, that it is impossible to give even a general view of them. In no two armies, for instance, are the functions of an adjutant to a general commanding a corps d’armée exactly alike. Beside these real adjutants, the requirements of monarchical institutions have created in almost all European states hosts of titular adjutants-general to the monarch, whose functions are imaginary, except when called upon to do duty with their master; and even then, these functions are of a purely formal kind.

ADLER, CHRISTIAN, born 1787, director of the royal porcelain works in Munich. Having been invited by Professor Melchior, he studied in the academy of Munich, and in 1815 received the appointment of superintendent of painting in the manufactory. He has produced a number of splendid designs for vases and salvers.

ADLER, JAC. GEORG CHRISTIAN, a German orientalist, born at Arnis, in the duchy of Schleswig, in December, 1755, died 1805. His earliest work on Hebrew documents appeared when he was only 16 years of age. His contributions toward our knowledge of Arabic and Syriac are very important, besides which he published, *Reisebemerkungen auf einer Reise nach Rom*.

ADLER SALVIUS, JOHAN, born in Strengnäs, Sweden, in 1590, and died at Stockholm in 1652. Of indigent and obscure parentage, he was indebted solely to his own talents and industry for the high positions which he afterwards filled. He entered the university of Upsal in 1610, but soon left it in order to visit in turn the most famous seats of learning in Germany, France, and Holland. He received the degree of master of arts in Helmstadt, and that of doctor of laws at Montpellier. He was ennobled by Gustavus Adolphus, in 1624, and afterward sent on various missions of importance to the Protestant courts of Germany. He accompanied this monarch on his expedition to Germany, in 1630, and drew up the declaration of war which Gustavus published against the emperor. During the thirty years’ war he enjoyed the fullest confidence of Gustavus and Christina, and as the chief representative of Sweden at the congress of Westphalia, he exerted a great influence upon the deliberations of that body. Some time after the conclusion

of peace, Adler Salvius returned to Sweden, was made a councillor and a baron, and was appointed to form a treaty with Poland. But his last sickness prevented the acceptance of this mission. Through life a warm friendship, founded on mutual esteem, existed between him and the celebrated Chancellor Oxenstiern.

ADLERBETH, GUDMUND JOHAN, a Swedish author, born at Joenköping, in 1751, died in 1818. He was a protégé of Gustavus III., at whose suggestion he wrote in conjunction with a man much superior to him in poetical genius, Count Gyllenborg, the drama *Birger Jarl*. Adlerbeth left some translations, of which that of the *Æneid* and of Racine’s *Iphigenie* are the best.

ADLERCREUTZ, KARL JOHAN, count, a brave Swedish general, born April 27, 1757, died Aug. 21, 1815. At the age of 13 he entered the Finnish dragoons as corporal, and was captain in 1788, at the commencement of the war with Russia. At Palkokoki he commanded the advance guard, and in 1790 he fought as major at Pirttimäki. At the outbreak of the Finnish war, in 1808, he commanded a brigade. When the adjutant-general Count Löwenhjelm fell into the hands of the Russians, Adlercreutz succeeded to his place. Upon his return to Stockholm he joined the party opposed to the insane policy of Gustavus IV., and it was he who, March 13, 1809, in the name of the nation, imprisoned the deposed king. In 1809 he accompanied the Swedish army to Germany as chief of the general staff, and in 1819 was created count.

ADLERFELDT, GUSTAV, Swedish historian, born in the environs of Stockholm, 1671, died July 8, 1709. He was the chamberlain and biographer of Charles XII., and accompanied him in all his expeditions. He was killed at the battle of Pultowa, and his manuscripts fell into the hands of the Russians, who generously restored them to his brother. His military history of Charles XII., from 1700 to the battle of Pultowa, in 1709, has been translated into German and French.

ADLERSPARRE, GEORG, count, born in the Swedish province of Jämtland, in 1760, died at Wermland, Sept. 23, 1835. Having entered the army at the age of 15, he received from King Gustavus III., in 1791, a secret commission to excite the Norwegians to rebellion. After the death of the king he left the army and devoted himself to science. In 1797–1800, he published a periodical, and the liberal spirit in which he conducted it brought upon him the suspicions of the government. In 1809 he unexpectedly received the command of a part of the so-called western army, and was shortly afterward promoted to the post of lieutenant-colonel. He was engaged in the conspiracy against Gustavus IV., and received many distinguished honors at the hands of the new government. Having received the command of the army, he was commissioned to excite the Norwegians against Denmark, in which he

was unsuccessful. After the sudden death of the crown prince he retired from public life, but still continued to receive marks of royal favor, notwithstanding the liberality of his sentiments. His oldest son, Karl August, has distinguished himself as a poet.

ADMETUS, king of Thessaly. Being dangerously ill, the oracle declared that he must die, unless some person would voluntarily take his place, which was done by his wife, Alcestis. After her death, Hercules visited Admetus, and promised to restore his wife, which he did, forcing Pluto to give her up.

ADMINISTRATION, a collective term signifying the ministerial or official department of the government, apart from the legislative and the judicial functions. The business of the administration is theoretically the same in all governments; the limits of its action are interpreted according as the form of government approaches despotism or republicanism. In Russia, where the czar is both head of the state and head of the church, the administration takes charge of every thing; in Austria, where the church is an *imperium in imperio*, the ecclesiastical affairs are to a great extent withdrawn from the action of the administration.

ADMINISTRATOR, an officer appointed by a competent court, in a case of intestacy, to take possession of the personal estate of the deceased, pay his debts and distribute the residue amongst his next of kin.—**PUBLIC ADMINISTRATOR**, an officer created by statute in large cities, to take charge of and administer the effects of strangers.

ADMIRAL, a naval officer of the highest rank. The title was introduced by the Genoese and other Italians into Europe, and was probably derived from the Arabic word *Ameer*, which was also used in reference to shipping, by the Greeks of the lower empire. In Britain there are three classes of admirals, red, white, and blue, with vice and rear admirals of each flag. The pay of a full admiral is \$25 per day, but he has a number of perquisites which greatly increase his income, especially while on active service, either at sea or in port. A rear-admiral receives \$15 per day. The management and superintendence of the fleet of England was formerly vested in a lord high admiral. James II. when duke of York, held this office, and when king, on account of his predilection for the naval service, kept it in his own hands. Prince George of Denmark, husband of Queen Anne, was also lord high admiral. The last incumbent of the office was the duke of Clarence, afterwards William IV., who held it from May, 1827, till Sept. 1828, since which time the office has been put in commission, the duties being performed by the lords of the admiralty, who are six in number, the first lord having a seat in the cabinet. His pay is \$22,500 per annum.

ADMIRAL, **HERNAN**, a French political assassin, born at Aujoulet, in Auvergne, in 1744,

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guillotined in Paris, in 1794. He had been a servant in an aristocratic family, and as the revolution had deprived him of his means of living, he determined to take revenge upon some of its principal leaders. His first wish was to shoot down Robespierre, and for that purpose he dogged his steps for some time. Not getting a favorable opportunity he turned upon the actor and montagnard Collot d'Herbois. On the night of the 1st Prairial, year II. of the republic, May 22, 1794, he fired two pistol shots at the latter without success. The convention connected this attempt upon the life of Collot d'Herbois with another attempt made by the young girl Renaud on Robespierre, and charged that both were bribed by Pitt. A plot was believed in, and 52 victims were thrown into prison on the joint account of L'Admiral and Renaud. L'Admiral persisted to the last in saying that he had no accomplices.

ADMIRALTY COURTS are courts having cognizance of questions exclusively arising out of maritime affairs; or of crimes committed at sea. The law administered in admiralty is partly traceable to the civil laws or to the law of Oleron. The Instance court deals with marine contracts, such as seamen's wages, claims for repairs, hypothecation claims, and claims arising between part owners of vessels. The court also decides salvage claims and claims of damage from collision on the high seas. In some of these cases the courts of common law exercise a concurrent jurisdiction. Another and peculiar function of admiralty courts is the adjudication of prizes captured in war. When vessels or other property are captured at sea, or on the seaboard, in time of war, it is the practice to submit the legality of the seizure to a competent court, before which the owners as well as the captors may be heard. The property seized being then adjudicated lawful prize of war, is disposed of according to the rules of the service. Customarily the judges of the ecclesiastical courts in England sit also in civil admiralty cases. This is not, however, *ex-officio*, but because the principles of the law administered are drawn from the same fountain-head, the Roman civil law. In questions of nautical skill the judge is usually assisted by one of the Trinity masters. The chief judge in admiralty was formerly the deputy of the lord high admiral, but he now holds his office as other judges; vice-admiralty courts are found in the colonies. The admiralty formerly took cognizance of offences committed on the high seas. This jurisdiction has been modified and partially transferred to the ordinary criminal tribunals. In the United States the admiralty courts are merged in the circuit and district courts of the Union.

ADMIRALTY ISLAND, off the coast of Russian America, is 90 miles in length from north to south, and 25 in breadth; lat. 58° N., long. 134° W.

ADMIRALTY ISLANDS, a cluster of islands in the Pacific, between 20 and 30 in number, the largest some 60 miles long, in long. 146° 44'

E. and lat. $2^{\circ} 18' S$. They are thickly wooded, and supposed to be numerously inhabited.

ADMONITION, a part of ancient church discipline. If the offence was of a private nature, the warning was given in private; otherwise before the assembled church. If the person censured did not amend his ways, excommunication followed.

ADOBE HOUSES, dwellings built of unburnt brick, which are in common use in Mexico, Texas, and Central America. Adobe bricks are made from earth of a loamy character containing about two-thirds fine sand mixed thoroughly with one-third or less of clayey dust or sand. Stiff clay is avoided, as the rays of the hot sun would crack it in pieces. The loamy substance under the action of the sun becomes a hard compact mass without a crack. Four men generally work at the making of adobe bricks—one in the hole to mix the mass, two to carry it on a common hand-barrow, and one to mould the prepared substance into bricks. The moulder has a double mould, each 18 inches long, 9 inches wide, and 4 inches thick. It has projecting handles at each end by which it can be raised. It has no bottom, the adobe brick being deposited on the surface of the ground made tolerably level. The mould is raised carefully and slowly away from the moulded masses. Before recommencing with another couple, the inner sides of the mould are washed with water; this process prevents the mud from sticking and spoiling the brick. The dumping of the mud from the barrow upon the adobe mould is facilitated by casting into the barrow a little finely-powdered dry manure or dust. The adobes are sometimes made 16 inches long and 12 inches wide. In the hot spring and summer seasons 2 or 8 days are sufficient for the first drying. The adobes are then carefully turned upon edge so as to expose the wet under surface to the action of the sun. In this position they should be left a week or a fortnight, according to circumstances, after which, if not immediately used, they may be stacked on edge and preserved from the weather. The four workmen, employed as before described, are able to make from 400 to 480 adobes per day. The adobes are laid with mud mortar made from the earth at the foot of the wall. The adobe house is not built continuously from day to day, as houses of wood, brick, and stone are. After the erection of every 2 feet of wall, the construction is left to harden for a week of good drying weather, and the same practice is repeated after the walls are completed and before the roof is laid on. These houses are seldom built above one story high. The inside plastering is generally done before the roof is put on, and so as to dry with the wall. If the wall has to be left unfinished through the fall and winter rains, the top is covered with a bushy weed called *cachanilla*, and this topped with a covering of earth protects the adobe until the ensuing spring. The door and window frames are inserted at pleasure,

either while the house is building, or spaces are left for their insertion after the house is finished. The roof covering is thus made: heavy joists (in Spanish *vigas*) are laid about 2 feet apart on the top of the walls, strong enough to bear nearly a foot of earth all over. The *vigas* are supported upon boards where they rest upon the wall, so as to distribute the weight of the roof and prevent the joists from crushing into the walls. Across the *vigas* and over the whole roof, poles are placed (called *lattillas*) averaging 2 inches in diameter, the largest on the highest side of the roof to begin the slope; on this they place a close covering of the *cachanilla*, above mentioned. It is evergreen, aromatic, bug-defying, and of suitable length. In default of *cachanilla* small willow brush is used. The earth covering of the roof is now put on, extending all over the roof to the parapet above the *vigas*, which rest on half the width of the wall below them, and prevent leaks into the room below. The upper coat of earth is from 4 to 6 inches thick, and is of the same loamy soil of which the adobes are made, mixed with mud mortar, and graded so as to give the roof a slight slope to the water-spouts. When this has hardened enough for a man to walk on it without leaving the impression of his foot (but it must not crack to any extent), another coating of earth, similar to the first, is put on. The advantages of an adobe house are great; it is warmer in winter and cooler in summer than either wood or brick. No furrowing or lathing is necessary, the plastering sticks well on the rough inside surface. Their duration is extraordinary. Buildings of adobe brick, 50 feet high, can be seen yet firm and hard as a rock, which are a hundred years old. They prove excellent fortifications, as was seen in the campaigns of the filibuster General Walker, who was seldom able to drive out a company of Central Americans when ensconced in an adobe house. There is no reason why this style of fabric should not be introduced into our western states. They cost nothing, or almost nothing to make, and would be very suitable for our poorer farmers. The Central American type of adobe houses might be improved upon, by building them on a stone foundation, or on one of mortar and cement raised one foot above the earth. This would be necessary in marshy localities, to protect the walls from the wash of rain, or the river flooding, and also everywhere against the melting of the snow. The roof might be improved by making the *vigas* (like the eaves of straw-thatched cottages) project eighteen inches or two feet beyond the wall all round. This contrivance would also protect the wall below from the action of driving rains.

ADOLESCENCE (Lat. *adolescere*, to grow), that portion of human life beginning with infancy and ending with the attainment of manhood. It continues as long as the fibres are increasing in size and firmness. The fibres having acquired a degree of strength sufficient to support the parts, their further growth is arrested.

ADOLPHUS I., count of Cleves, was elected bishop of Munster in the last half of the 14th century. In 1380, he reestablished the order of Fools; 85 lords and gentlemen entered into the society, which seems to have been intended to cultivate good fellowship and unity among the nobles of the county of Cleves. The badge of the society was a silver fool embroidered on the cloak. They reassembled every Sunday after Michaelmas, and had a succession of splendid suppers at the expense of the common fund. The body then set about arbitrating upon the differences that had arisen between the members. The order has long since vanished.

ADOLPHUS OF NASSAU, emperor of Germany, 1292–1298, successor to Rodolph of Hapsburg, in whose court he was brought up. He was a man of knightly valor and discretion, and was elected by the princes of the empire, who feared the great parts and imperious will of Albert, Rodolph's son. The disappointed expectations of some of his supporters, and especially of the elector archbishop of Mentz, caused them to withdraw from his cause, and he was summoned before a diet, held at Mentz, to answer some alleged offences. He refused to attend, and for this pretended contumacy, he was declared to have abdicated, and the crown was decreed to Albert. Adolphus was not, however, to be thus summarily expelled; he flew to arms, and the rivals met in person at Gellheim, not far from Worms, July 2, 1298. Both spurred their horses furiously against each other, but Adolphus was unhorsed, and was killed by one of Albert's followers.

ADOLPHUS, FREDERIC, duke of Holstein Gottorp and king of Sweden, born May 14, 1710, died Feb. 12, 1771. In order to counteract the designs of the Russian czar upon Sweden, the diet of that country elected Adolphus king of Sweden. He ascended the Swedish throne April 5, 1751. His reign was not an easy one, as the nobles inflicted on him many humiliations, and made him a mere puppet. In 1757, he was compelled, against his will, to take a part in the seven years' war against Frederic of Prussia, whose sister he had married. He once threatened to resign the sovereignty unless the diet was convoked. This threat brought about the convocation of that body, which maintained his rights, and preserved him from the usurpations of the nobles.

ADOLPHUS, JOHN, English advocate and author, born in London, in 1766, died July 16, 1845. He served his time in London, and was admitted attorney and solicitor in 1790. Naturally eloquent, acute, and ready, he aspired to the higher honors of the profession, and was called to the bar in 1807. He soon obtained the character of an adroit, skilful counsellor, and practised chiefly at the Old Bailey, in criminal cases. His forensic reputation was not fully established until 1820, when, on the trial of the "Cato-street Conspirators," he defended Arthur Thistlewood, charged with high treason, with

such marked ability, that though his client was convicted, his own skill and eloquence were highly commended. From that time, his practice at the bar was large and lucrative. No man managed a case with more tact, but his warmth of temper frequently led him into undignified squabbles with his professional brethren. His reports are referred to as authority. It is to his pen, however, that Mr. Adolphus will owe his permanent reputation. As a historian and biographer, he displays learning, industry, research, and a style at once dignified and eloquent. His principal works are "The History of the Reign of George III." in 7 vols., of which a new and enlarged edition appeared shortly before his death, "Biographical Memoirs of the French Revolution," a "History of England," "The British Cabinet," "Political State of the British Empire," and "Memoirs of John Bannister, Comedian."—**JOHN LEYCESTER**, barrister, son of the foregoing, highly distinguished himself at the university of Oxford, and published in July, 1821, a work which Lockhart says "was read with eager curiosity and delight by the public, with much diversion, besides, by his (Sir. W. Scott's) friends, and which Scott himself must have gone through with a very odd mixture of emotions." This book is entitled "Letters to Richard Heber, Esq., containing critical remarks on the series of novels beginning with Waverley, and an attempt to ascertain their author." The purpose of this book was to prove, from his own acknowledged writings, and from other known circumstances connected with his personal history and position, that Scott, and none other, could be the author, sole and unassisted, of the Waverley novels. From the time this well-written volume appeared, Scott felt that his *incognito* was ended, and thenceforth he wore his mask loosely. Mr. J. L. Adolphus visited Scott, at Abbotsford, several times between 1828 and 1831, and his diary, during those visits, forms an interesting portion of Lockhart's Life of Scott.

ADONAI, one of the appellations of the Supreme Being in the Hebrew scriptures. It is the plural of Adoni, which signifies my lord. The Jews, who dare not utter the name of Jehovah, substitute Adonai in its place where it occurs in the Hebrew text. The ancient Jews were less scrupulous, and there is no ordinance even now prohibiting the use of the name of God in their services.

ADONIA, feasts anciently held in honor of Venus and Adonia. They lasted two days; the first was spent in tears and lamentations, the second in mirth and feasting. The festival typified the dying and resurrection of nature.

ADONIC VERSE consists of a dactyl and a spondee, or trochee, as *illū mēriā* and is adapted to sprightly poetry. It is seldom used alone, but combined with other metres. The Anglo-Saxons used this verse in their rude compositions.

ADONIS, in Greek mythology, a beautiful youth beloved by Venus. The story of his

birth and parentage is variously given, but according to the more common account received from the cyclic poet Panyasis, he was the son of Theias, king of Assyria, and his daughter Smyrna. Venus discovering the beauty of the child, hid him in a chest which she intrusted to Proserpina. Hence resulted the dispute between these goddesses as to which of them Adonis should belong to, which was settled by the judgment of Jupiter that he should remain with each of them an equal part of each year. Adonis died of a wound received from a wild boar in the Idalian woods, and the sorrow of Venus for his loss was so great that the gods allowed his return to earth for six months of every year to console her. Her grief has been celebrated not in Greek literature alone, but also in that of many modern nations.

ADONISTS, a party among divines and critics, who held that the Hebrew points attached to the consonants in the word Jehovah belonged properly to the words Adonai and Elohim, and are intended to remind the reader to read Adonai, and not Jehovah.

ADOPTIANI. The speculations of the early theologians on the two natures of Christ had given rise to views more or less differing from that which had been espoused by the church in the council of Nice (325). From Praxeas (200) and Sabellius (250), the controversy on the two natures was brought down by Apollinaris (362), Nestorius (428), and Eutyches (450), to the invasion of the Saracens and the subjugation of Spain (711) to the sway of Islam. The council of Chalcedon (451) declared the inseparable but unconfused union of two natures in one person; and at every reappearance of Nestorianism it was promptly put down by councils. But under the immunities which a refusal of the Mohammedan government to interfere in the religious disputes of its subjects secured, Elipandus, bishop of Toledo (783), and Felix, bishop of Urgel, pushed the doctrines of Nestorius to their extremest conclusions, and began to disseminate views concerning the two natures of Christ which were in opposition to the tenor of the church councils for four centuries. They affirmed that Jesus was really the son of God only in his divine nature, and the son of God by adoption merely, in his human nature, and so divorced his two natures from each other. It is said that Elipandus and Felix were provoked by the hostility of Mohammedanism to Christianity, to the investigations which confirmed them in the doctrine of adoption. So long as they confined their efforts to spread their views to the Mohammedan territory, no notice was taken of the heresy. But when in 787 Felix acted the propagandist of adoptionism within the precincts of Charlemagne, the subject was brought to the notice of that emperor, and the synod of Regensburg was convened (789), and that of Frankfort (794), and of Aix-la-Chapelle (799), each of which condemned in turn the doctrines of Elipandus and Felix as heresies. Felix made an insincere recantation, but Eli-

pandus, secure in his Spanish bishopric, lived in the undisturbed promulgation of his opinions. The conduct of Charlemagne in the matter is generally commended by historians as magnanimous and impartial. The discussion out of which adoptionism sprung appears now and then in the after history of the church, to the present time.

ADOPTION, a taking of another's child as one's own, not recognized in English or American law, but still regulated by law in Germany and France, as it was in Rome. Where the party adopted is under age, and actually under the parents' power, it is called adoption proper, or, where it is of age, *sui juris*, adrogation. The abstract rule that adoption must imitate nature, though derivable from regulations of the Roman law, such as that forbidding eunuchs to adopt, and that requiring the adopter to be at least 18 years older than the adopted, is not fully carried out, since by the same law those incapable of procreation may adopt. In Germany, while the child is more completely absorbed into the family of the adopter than he was in Rome, numerous subtle distinctions have been ingrafted upon this title of the law, while the *code Napoleon* admits adoption only to a limited extent. A prerequisite to adoption in Rome, was leave from the college of priests, in Germany the sanction of the prince or judge is required. In Texas, a person may adopt another to be his legal heir by filing a statement, authenticated like a deed, expressing his intention so to do, with the county clerk, thereby entitling him to all the rights and privileges of a legal heir, except that if the adopter have a legitimate child or children, the adopted shall in no case inherit more than a fourth part of the testamentary estate of the adopter.

ADORATION (Lat. *ad*, to, and *os*, *oris*, the mouth), the act of rendering homage to a deity, or to a superior, as if he were a god. It means literally to raise the hand to the mouth, this gesture importing in the East the profoundest respect.

ADORNI, CATHARINE FIESCHI, a poetess, born at Genoa in 1447, died Dec. 14, 1510. When very young, she married Adorni, a Genoese nobleman, whose immoral conduct caused her to separate from him and consecrate herself to a life of piety and charity. Beside poetry, we have some treatises from her on subjects relating to the welfare of the soul.

ADORNO, the name of several doges of Genoa. I. ADORNO GABRIELE (1854), a merchant, and partisan of the Ghibelines. When the Genoese passed their sentence of exclusion from the principal office of the state upon the four noble families who had shared all public employments between them, Adorno was made the first plebeian doge. But the Genoese soon found that ambition and personal self-seeking were not peculiar to patricians, and Adorno was supplanted and forced to flee. II. ANTONIO, elected doge 1884. He leaned to the democratic side, and was dispossessed and reestab-

lished three times in succession. He persuaded his fellow-citizens to surrender themselves, certain reserved rights excepted, to the sovereignty of Charles VI. of France. The treaty was signed Oct. 26, 1396, and the ensuing month Antonio surrendered the insignia of his office to the French commissioners. But this arrangement did not last; the turbulence of the Genoese soon undid what Adorno had persuaded them to do. III. PROSPERO, elected doge in 1461, died in 1486. He made himself famous by driving out the Sforzas and their Milanese troops from his native city, which had been seized by Galeas Sforza. He took the title of defender of Genoese liberty, and was the idol of the people for a short time. By a sudden change of opinion he became detested, and to save his life had to escape from Genoa by throwing himself into the sea and swimming to the galleys of the king of Naples, under whose protection he lived until his death. IV. FRANCESCO, a Jesuit, born 1531 at Genoa, died Jan. 13, 1586. He composed several treatises, some of which are still extant in the Ambrosian library.

ADOUR, a river in the S. W. of France, about 180 miles in length, 70 of which are navigable. Its course is nearly semi-circular. It empties into the Bay of Biscay. Though many streams unite with it, its volume of water is small, except during the melting of the snows in the Pyrenees, when it often inundates the surrounding country.

ADOWA, one of the chief towns of Abyssinia. It is the great depot of the trade between the coast and interior. The chief manufactures are cotton cloths. Population, 8,000.

ADRAIN, ROBERT, LL.D., born in Ireland, Sept. 30, 1775, died at New Brunswick, Aug. 10, 1843. He came to this country during the rebellion of 1793, and was for some years engaged in teaching. In 1810 he was made professor of mathematics and natural philosophy in Rutgers college, at New Brunswick, New Jersey, and three years after was appointed to a similar office in Columbia college, New York. From 1827 to 1834 he filled the professorship of mathematics in the university of Pennsylvania. In addition to other publications, he edited "Hutton's Mathematics."

ADRASTEIA, daughter of Zeus and Anangke, was the minister of the vengeance of the gods; named after Adrastus, who built her a temple.

ADRASTUS, king of Argos, in the early history of ancient Greece. His father was Talau, king of Argos, and his mother is variously named Lysimache, Lysianassa, and Eurynome. Being expelled from Argos he took refuge in Sicily, and there succeeded to the throne, and instituted the Nemean games. He was subsequently restored to his native city, and married one of his daughters to Polynices, the exiled king of Thebes. He now formed a union of Greek heroes to restore his son-in-law to his throne, and led the famed expedition of the "seven against Thebes," the abundant theme of

later tragedy. Adrastus alone survived, saved by the fleetness of his horse Arion. Ten years later, he prompted the seven sons of the defeated heroes to renew the war. Their expedition, known as that of the Epigoni or descendants, set out with promises of success from the oracle, and ended with the capture and complete demolition of Thebes. The son of Adrastus was the only Argive hero that fell, and Adrastus himself soon after died of grief. The legends of his life are interwoven into some of the masterpieces of Greek literature.

ADRETS, FRANÇOIS DE BRAUMONT, a blood-thirsty French warrior of infamous reputation, born in Dauphiné, 1513, died Feb. 2, 1587. In consequence of ill success in a law-suit, which ill success he attributed to the Guises, he turned Huguenot and committed savage excesses in Dauphiné and Provence. After the peace he appeared before the royal council of Charles IX. and saved his life by abjuring Protestantism.

ADRIA, an ancient seaport in Cisalpine Gaul, between the mouths of the Adige and Po. The inundation of these rivers gradually rendered the country uninhabitable, and their deposit of soil caused the sea to recede until the town is now 14 miles inland. The ruins of ancient Adria lie south of the modern town of that name. It forms part of the Lombardo-Venetian provinces. Population, 10,000.

ADRIAN, shire-town of Lenawee Co., Michigan, is situated on a tributary of the Raisin river, 70 miles W. S. W. of Detroit. The Erie and Kalamazoo railroad, constructed in 1886, joins Adrian with Toledo, 32 miles off, and the Michigan southern road passes through the town. The completion of these lines of road has greatly accelerated the growth of the place, which now commands the trade of an extensive grain-growing region. It has two banks and several fine public edifices. The stream on which it stands furnishes a water power which is used by several mills. Population, 4,000.

ADRIAN, Roman emperor. See HADRIAN.

ADRIAN, the name of several popes. I. Born at Rome, ascended the pontifical chair in 772. During his reign the Longobards invaded the provinces which Pepin had presented to the Roman see. Adrian solicited the assistance of Charlemagne, who entered Italy, and overthrew the power of the Longobards in 774. In return he received from Adrian the title of king of Italy and patrician of Rome. In 791 Rome was inundated by the Tiber, when Adrian alleviated the distress of the populace by distributing provisions, in boats, which visited all parts of the city. He also rebuilt the fortifications of Rome, and was charitable to the poor. He died in 793. II. Born at Rome, became pope in 867, and died in 872. He had been married, but left his wife to live in celibacy. During his pontificate the schism between the Greek and Latin churches was formed, which still exists. III. Born at Rome, was made pope in 884, and died in 885, on his way to the Diet at Worms. IV. Nicholas Breakspear, the only

Englishman who ever filled the papal chair, became pope in 1154, and died in Sept. 1159. He was made bishop of Albano by Eugenius III., who sent him as his legate to Sweden, and on his return he was, much against his will, elected pope. Rome was at this time in a state of great confusion, resulting from the preaching of Arnaldo, a monk of Brescia, who was advocating a reform in the church. At the request of Adrian he was given up by Frederic Barbarossa, to whose dominions he had fled for refuge, and executed. Frederic was soon after crowned emperor of Germany by Adrian, after a dispute as to the forms to be observed. After the ceremony a general conflict took place between the Romans and Frederic's troops, in which many lives were lost. Adrian afterward became involved in numerous quarrels with Frederic, which was the origin of that feeling of bitter enmity between the pope and the house of Hohenstauffen, only terminated by the fall of the latter. V. A Genoese, pope in 1276, died five weeks after his election. VI. Born at Utrecht, was the preceptor of Charles V. and elected pope in 1522. He died in September, 1523, after vainly attempting to prevent the Lutheran schism by a reform of the abuses of the church, which he did not live long enough to accomplish.

ADRIAN THE AFRICAN, flourished in the seventh century, and came to England with Theodore, archbishop of Canterbury, where he was made abbot of St. Peter's. Bede speaks in high terms of his intellectual influence on the English nation.

ADRIANISTS, the name of two religious sects. The first were followers of Simon Magus, about the year 34. The other was founded by Adrian Hamstead the Anabaptist, and held some peculiar views concerning Christ.

ADRIANOPOLE, the second city in European Turkey, situated in $41^{\circ} 44' N.$ lat. $26^{\circ} 34' E.$ long. 135 miles W. N. W. from Constantinople, on the banks of the Hebrus. It stands on the side of a hill, is surrounded by old walls, and intersected by narrow and crooked streets. The population is about 100,000. It contains 40 mosques, the most famous of which, that of Selim II., was built of materials furnished by the ruins of Famagusta, in Cyprus. One of its most important edifices is the bazaar of Ali Pasha, 800 paces in length, built of red and white bricks, placed alternately. In it are sold the more valuable articles of merchandise, as shawls and jewelry. The river adds to the traffic of the place. It has manufactures of silk, woollen, and cotton; dyeing, distilling rose-water and other perfumes, and tanning, are also carried on. It exports wool, leather, flax, and opium. A Greek archbishop has his residence here, and likewise a British consul. Adrianople was originally a Thracian town, and takes its name from the Emperor Adrian, by whom it was rebuilt. In 1360 it was taken by the sultan Murad I., and was the metropolis of the Turkish empire from that time until the taking of Con-

stantinople in 1453; the sultans frequently made it their residence till the beginning of the eighteenth century. The Russians captured the city August 20, 1829, which resulted in the conclusion of a treaty of peace between Russia and Turkey at Adrianople, on Sept. 14 of the same year. By this treaty they restored Moldavia and Wallachia, and all their acquisitions of territory in Bulgaria and Roumelia. The Pruth, and from its mouth the Danube, was made the dividing line between the two countries, and the boundaries of their respective Asiatic possessions were agreed upon. Russia obtained the privilege of trading with all parts of the Turkish empire, the navigation of the Danube, the Black Sea, and the Mediterranean, and the passage of the Dardanelles, upon the same terms with the most favored nations, and a full indemnity for her expenses during the war.

ADRIATIO SEA, the portion of the Mediterranean lying between Italy on the W. and Illyria and Albania on the E., takes its name from the city Adria. Its length from the strait of Otranto (which connects it with the Ionian Sea) to the mouth of the Tagliamento, is 480 miles; its average width about 180 miles, which, northward from the mouth of the Po, is reduced to about 60 miles by the peninsula of Istria. The Adriatic receives few rivers of importance, except the Adige and the Po. The western coast is generally flat and swampy, and consequently unfit for habitation; its harbors are few and poor. The eastern shores are steep and rocky, and the numerous islands along the coast furnish vessels a safe shelter from storms. The north-western part of the Adriatic is known as the gulf of Venice, the north-eastern as the gulf of Trieste. On the western coast lies the gulf of Manfredonia, bordering the kingdom of Naples, and on the eastern the gulf of Cattaro in Illyria, and of Drino, in Albania. During summer the navigation of the Adriatic is free from danger, but the S. E. winds that blow in winter produce disastrous shipwrecks. Its depth between Dalmatia and the outlets of the Po is 22 fathoms; but opposite Venice and in a considerable portion of the gulf of Trieste, less than 12 fathoms. To the southward it deepens rapidly. Its waters are more salt than those of the Atlantic. The tides are almost imperceptible. There can be little doubt that the dimensions of the Adriatic were formerly much greater than at present, and that they have been contracted by the deposits of mud made by the streams that empty into it. On the western coast, several lagoons produced by sand-bars, are being rapidly transformed into meadows by this process. The original depth of the gulf has likewise been greatly diminished by the accumulations of sandy marl and testaceous incrustations at the bottom, similar in character to the strata forming the hills of the Italian peninsula. Within the last 2,000 years the shores of the gulf of Trieste, near Karama, have advanced from 2 to 20 miles into the sea.

ADULE, now Zulla, the remains of an ancient town of Abyssinia, is situated on the west coast of the Red Sea, on Annesley Bay, in 15° 35' N. lat. and 35° 59' E. long. In the 6th century it was the port of Axum, and its merchants dealt in slaves and ivory.

ADULLAM, one of the cities of the plain, in the tribe of Judah, fortified by King Rehoboam. The "cave of Adullam," where David hid when pursued by the Philistines, was probably near the Dead Sea.

ADULTERATION, a term applied to the contamination of different articles of food, drugs, &c., by mixing them with cheap and inferior substances. In every branch of trade in which the practice could be applied, it has been introduced, till few can now tell what they eat and drink, and the physician is quite unable to predict with certainty the effect of his prescriptions. So far has the evil spread, that it has become necessary for governments to cause investigations to be made, and laws to be enacted, with the view of exposing and checking the numerous frauds. The aid of science, with her modern discoveries, has been invoked, and new methods of detecting the minute differences which distinguish similar organic structures have been applied with wonderful accuracy to this subject. The microscope has become a very important instrument of chemical analysis, and must hereafter be used for distinguishing from each other the innumerable varieties of organic bodies, whose properties depend, not on the proportions in which their elements are combined, but on the hidden modes or arrangements of these combinations, and on the presence of some peculiar essences of too subtle a nature to be detected and recognized by the mere apparatus of our laboratories. The form, however, that these combinations and essences impress upon the structure of the organic body, is as fixed and characteristic, as is the form of the crystal, which distinguishes the mineral species; and so constant is it, that though the substance be ground to powder or burned to ashes, the powder and the ashes still retain the characteristic marks, and reveal to the skillful observer the very name of the plants from which they were derived. As in geology, so in vegetable physiology, nature has provided many wonderful modes of preserving complete the record of her doings. An illustration of this may be cited common to both these departments. The ashes of the hard, stony anthracite do not fail to bear their testimony to the vegetable origin of this fuel; and in them the microscope discovers the very family of plants, which produced it. Applied to the fraudulent mixtures of foods and drugs the microscope becomes invaluable. In wheat flour it detects the mixture of rice flour, and in the *Maranta* arrowroot it exposes the peculiar structure of the cheap potato flour and sago. In mustard and coffee it brings out the peculiar forms of chicory root; and in the former turmeric has been detected by it, when this was added only in the proportion

of $\frac{1}{100}$ part. Delicate farinaceous preparations recommended for invalids and infants, and sold at high prices, with such names as "Prince Arthur's Farinaceous Food," and "The Prince of Wales's Food," are resolved by the microscope, the one into plain wheat flour baked, and the other into potato flour. The impurities of vegetable drugs are likewise detected by the same instrument; and the genuine articles are easily recognized. Poisonous ingredients being mostly of a mineral nature, are subjects rather of chemical analysis, than of microscopic examinations. There is an instance, however, of cattle having been poisoned by eating rape or oil cake, in which were detected by Dr. Hassall the ground seeds of the mustard. Chemical analysis in such a case could discover nothing. It is to Dr. Hassall, the author of scientific papers in the "London Lancet," and of several works on food and its adulterations, that the credit is principally due for the progress made in this department of science, at least in its applications to this subject. Even in 1851 the chancellor of the exchequer quoted in the house of commons, as the deliberate opinion of three eminent chemists, "that neither by chemistry, nor by any other means, could the admixture of chicory with coffee be detected." Now nothing is more certain and precise than the discrimination by the microscope of the various forms of vegetable tissues. In making use of this instrument for detecting adulterations, it is first necessary for one to become familiar with the appearance, in its pure state, of the article to be examined. If it be a powder, as flour or arrowroot, a very minute portion is to be put upon the glass slide of the instrument, a drop or two of water added, through which the powder is to be diffused in a layer so thin, that the light may easily pass through it, and one of the thin glass covers is to be placed over it, when it is ready for examination. In case the substance is a root, stem, or seed, thin slices are to be shaved from it with a razor, and these submitted to the microscope. When the structure of the pure article is made familiar, it is to be replaced with the doubtful one, and a mere glance is then often sufficient to determine the presence or absence of strange ingredients. According to the extent of our acquaintance with the structure of various vegetable substances, will be the ease of recognizing the number and nature of those which may be present. In some vegetable powders, Dr. Hassall has succeeded in detecting no less than nine different vegetable productions. The knowledge of the observer may be limited to a class of substances he is particularly interested in, and the results of his examinations may be practically correct. But it is advisable for all who turn their attention to this subject, to acquire a knowledge of vegetable anatomy by the study of books, and by observation to gain some familiarity with the characters of the different tissues and fibres of plants, with the structure of the leaves, stems,

flowers, and roots, with the seeds particularly, and with the granules of the starches. But it is not upon the microscope alone, that we can depend for the detection of the substances used for adulteration. Chemistry still furnishes the only tests for the great majority of these and for the most dangerous of them. The mineral poisons, that are made use of to give light colors to confectionery, and the fine green shades to pickles and to tea, are only brought to view by the slow processes of chemical analysis. By these, however, they are separated quantitatively, and in forms that are recognized by every one. The description of these processes does not properly come within the scope of this article. In this country, as well as in Great Britain, public attention has at times been awakened to the immense frauds practised in adulteration; yet the laws enacted by the government have probably done less to check the spread of the evil, than have the voluntary efforts of individuals, and the publicity they have given to these practices. In London, from 1850 to 1854, the names of the traders who were detected in their dishonest dealings, were published in the "Lancet," with an account of the adulterations they practised. The effects of this exposé, combined with the exposure recently made before the committee of parliament, has been to reduce the amount of adulteration to probably one-twentieth of what it formerly was. The change in many articles of confectionery, pickles, sauces, and bottled fruits and vegetables, is apparent to the eye. The same reform is much needed in our own country, and can be accomplished by the same means better than by the action of legislatures. There is no doubt that the lives of many young children are yearly sacrificed in our cities by the improper mixtures sold as milk. It is possible that, if a calculation were made here like that which was made in London, it might be found, as it was there, that the whole number of cows supplying milk is insufficient to furnish each person with more than a tablespoonful of milk per day. Against such frauds the poor have no protection. Their purchases must be made at the cheapest rates. The unscrupulous dealer thus undersells the honest tradesman, vice is sustained, and the moral as well as the physical health of the community is corrupted. Fortunately the system of tampering with the important articles of flour and bread is not introduced into this country, as it has been in England; though by an investigation into the qualities of the flour sold to the poor, and of the bread and its actual weights which this class purchases, developments would no doubt be made that are not now dreamed of. Unwholesome damaged flour would be found mixed with good, and injurious mineral substances added to conceal the fraud and increase the whiteness of the bread. The mistaken taste of the public for very white bread, leads the bakers to select the flour from which the more nutritious portion of the grain

has been separated by the miller, and to make this flour still more white he adds to it a quantity of alum. Though the use of this substance in bread is forbidden by law in England, it was found in every one of 58 samples that were examined for it. Sometimes it happens that the millers make the adulterations, and the bakers, unaware of this, give the flour another dose. Cheaper, and less nutritious kinds of flour, as of rice, potatoes, corn, beans, rye, &c., are mixed with wheaten flour, some of which beside their direct effect in lessening the value of the article, also cause the bread to absorb much more water, and thus add to its weight by substituting water for flour. Carbonate of lime, and sulphate of lime, silicate of magnesia in the form of soapstone, white clay, carbonate of magnesia, bone dust, and bone ashes have all been detected in England in flour. In the adulterations of tea, especially green tea, the ingenuity of the Chinese is taxed before it leaves their country, and that of the English on receiving it in their own. The list of other plants which furnish leaves for the tea chests, and which are recognized by the microscope, is too long for repetition here, and so of the poisonous mineral ingredients including arsenite of copper, which are skilfully used to make good green teas of unsalable black teas. Coffee fares somewhat better, its adulterating mixtures being of a more harmless nature, such as chiccory, acorns, mangel-wurtzel, peas, and beans, and for the use of the poor in London roasted horse-liver. Sugars are more decidedly free from adulteration, but the brown sugars, as usually imported, are found from the accidental impurities present, and from the immense numbers of live animalcules, to be in a state unfit for human consumption. The white lump sugars are very pure, and probably more free from sand than they have credit for. Any insoluble substance like this can be easily detected. No articles, however, have been the subjects of such a reckless system of adulterations as the colored sugar confectionery. Though expected to be used principally by children, the colors painted upon the candies and sweetmeats are the product of virulent mineral poisons; and it is wonderful what a variety of these have been made applicable to this purpose. Their use, however, is not now nearly so great as it was in former times, and is discountenanced by reputable dealers in these articles. Wines and spirits, from their high value and general use, as also from the difficulty of detecting the cheap mixtures added to them, are almost universally adulterated to some extent; while many that are sold have no sort of right to the name they bear, being spurious imitations made up entirely of ingredients wholly foreign to the country which produces the genuine wine. The substances added with a view of preserving wines are sometimes poisons, lead and copper both being used, the former in the state of litharge. In England the favorite port wine is thus most shamefully treated, besides being

manufactured on a very large scale, after a variety of curious recipes, from thousands of pipes of spoiled cider imported for the purpose, bad brandy, and infusions of logwood and other dye stuffs. The champagnes, which are more in demand in this country, find here as ingenious imitators; and from our native ciders with a due mixture of cheap French wine, sugar, brandy, and a little lemon or tartaric acid, more champagne is bottled and set off with showy French labels, than ever crosses the Atlantic. If gooseberry wine is easily obtained, it is used instead of cider for making good champagne. The impossibility of supplying the demand for French brandy, and the consequent high price of the article, have led to its extensive manufacture in France from very cheap materials. In like manner the Chinese never allow orders for particular qualities of tea to go unfilled, even though they amount to many times the quantity of this tea grown. The materials for adulterating and concocting French brandies are water, and spirits obtained from molasses, beet root, and potatoes, and more particularly cheap whiskey, which is sent from this country in large quantities to come back brandy. Burnt sugar gives the desired color, and the fine flavor is made to suit the taste by skilful admixtures of essential oils and distilled murk, which is the refuse skins and pipe of the grape left after the distillation of the wine. This stuff is actually imported into England, to be distilled with molasses for making brandy. Gin is largely adulterated with water, and as the effect of this is to make the liquor whitish and turbid, other substances must be added to correct this and "fine" the gin. These are alum, carbonate of potash, and the poisonous acetate of lead. To restore its strength and pungency, cayenne in the form of tincture of capsicum, or grains of paradise, are employed; and its peculiar aroma is happily preserved by some extraordinary compounds called "gin flavorings." These are made according to established recipes, the ingredients of which are juniper berries, coriander seeds, almond cake, angelica root, liquorice powder, calamus root, and sulphuric acid. The common whiskey of the country is largely diluted in the distilleries with water, and then to restore the strength, the lye of ashes, which is prepared for the purpose, is added in sufficient quantity to give the liquor the character which is expressed by the common name by which it is called, of "rot-gut." It has been supposed that the adulteration of drugs was very generally practised, and almost without check. Were this the case, medicine would indeed be in bad repute; for in no department would this practice be followed by more disastrous consequences. That it is largely adopted, the analyses of our most respectable druggists prove; but these also show that the system may be exposed, and in a great measure checked by those disposed to do so; and further, that the articles used for sophistication are generally of a very harmless nature, thus, according to the notions of some,

decidedly improving rather than injuring the medicine. In July, 1848, a law went into effect in this country, forbidding the importation of these dangerous mixtures. But while the effect of this has been to exclude foreign adulterations, the manufacture of them at home has been greatly increased. In the first year after its establishment, it appears by the report of Dr. J. M. Bailey to the New York academy of medicine, that over 90,000 pounds of drugs, comprising Peruvian bark, rhubarb, jalap, senna, and various other kinds, had been rejected and condemned in the ports of the United States. It is very questionable, however, among druggists, whether after all the sale of spurious medicines has been seriously diminished. The adulteration of Turkey opium is carried on as a regular business at Marseilles. It is there literally made over again. The greatest variety of impurities are introduced into it, as beside extracts of the poppy and other plants, sand, ashes, guma, aloes, small stones, pieces of lead and iron, seeds and stems of plants, are freely used. In England too the same practice has been so successfully pursued, that what appeared to be the best Turkey opium has proved entirely destitute of the active principle of the drug. A large manufacturing establishment at Brussels, in Belgium, at which the spurious drugs for this country were prepared with singular skill, and which maintained a travelling agent in our seaport towns, has been, it is said, since the passage of this law, transferred to this country. Certain it is that many highly-sophisticated articles are still detected. The essential oils used more particularly for perfumery, are especial objects of adulteration. Oil of wormwood, we notice upon the test book of one of our most respectable druggists, "warranted pure from Boston," contained about 40 per cent. of a mixture of chloroform and alcohol, besides some resin or fixed oil. Such adulterations may be detected by the greatly-reduced boiling point of the fluid. "Precipitated chalk from Poulney" was found by the same firm to be nothing but gypsum or plaster; and "precipitated sulphur" contained 49 per cent. of the same cheap mixture. Scammony, which is largely imported by them, and is extensively used as a powerful drastic purgative, was, before the passage of the law, always very impure. At Smyrna, its adulteration is still a regularly-established business, and conducted according to an understood scale. The article called cake-scammony, bought and sold in this country, is considered good, if it is found to contain 20 per cent. of the genuine material; and virgin-scammony passes, if it contains no more than 20 per cent. of foreign matter. This is usually starch. Chalk and flour are also used. When the new law went into effect, this powerful medicine, sent to the druggists far purer than they had been accustomed to receive it, must have entered into the prescriptions of physicians in a much larger proportion than they could have anticipated; and probably in many cases with the most serious

consequences. The list of adulterations might be extended through nearly all the articles of food, and drink, and drugs, till we may well fear, that with every substance taken into our stomachs we imbibe some dangerous poisons, and aid to sustain villainous fraud. The remedy for these evils is in the hands of every one who has the taste and capacity for the microscopic and chemical investigations, by which they may be surely detected and exposed. The talents requisite for this could be directed to no more praiseworthy objects. By systematically making public the results of examinations of articles purchased of different dealers, together with the names of these dealers, as was done in the reports in the "Lancet," the community, and the poor especially, who in these matters are utterly helpless, are protected against these evils, and honesty instead of fraud is sustained and rewarded.

ADULTERY is the offence of incontinence between persons, one or both of them being married. The laws of modern states generally treat adultery as an offence against the moral law, for which the offender is accountable to the injured party. Some states, however, still preserve the theory of the Jewish law, by which adultery is constituted a crime against society. By the Mosaic institutions, the invader of a husband's rights and the wife herself are criminals, liable to capital punishment. The incontinence of a married man was not, however, by any means to be viewed in the same light. The Roman civil law takes the same view, and in this respect the laws of ancient Rome and the laws of the Jews, and even of the Goths and Teutons, were singularly accordant. The Romans, indeed, did not judicially punish the adulteress with death, but then the next of kin was at liberty to expiate the disgrace to the family, by putting the offender to death; and the French penal code expressly authorizes the death of the parties if caught in the act, while the English law considers it a sufficient provocation for homicide. During the commonwealth in England, adultery was made a capital felony, but at the restoration the law was repealed. Traces of this usage are still to be found in the New England states, in which the old laws were founded upon scriptural precedent. The punishment of adultery in the United States generally is fine and imprisonment. But we think that the public sentiment is against treating it as a criminal offence. In France, before the revolution, an adulteress might be sent into a convent or hospital. If the husband at the end of two years received her again, she was free; if not, her head was shaved and she was a perpetual inmate. By the present laws, an adulteress may be condemned to imprisonment from 8 months to 2 years. Among savage nations, both ancient and modern, a variety of punishments of every degree of ingenious cruelty, are adopted for the repression of this offence. In all countries the offence of incontinence by the man is very

differently regarded from the same offence in the woman. The history of the laws in this, as in many other respects, indicates that they are made by one sex. A curiously-striking instance of this distinction in the degree of turpitude is to be found in the case of Judah and his daughter-in-law, Tamar, in Genesis. By the modern French laws, while the woman, as we have shown, was to be imprisoned, the man cannot be even charged with the offence, unless the offence be committed in the conjugal dwelling. The Jewish law deals with wives as property, and upon this same theory is founded the civil remedies by which a husband may obtain damages from the invader of his domestic peace. On this assumption, all the wife's property vesting in her husband, the law consistently denies her any equivalent for feelings outraged by a husband's infidelities. The English action for criminal conversation is justly a frequent point of attack for satirists. The grounds of divorce differ in different countries, but adultery is everywhere a ground of divorce. By the *code Napoleon*, adultery of either party is a ground of absolute divorce, on the petition of the party aggrieved. So in the United States, and in Scotland. In England, it is only the husband who may be divorced on adultery of the wife; adultery by the husband only entitles the wife to a decree of separation, technically, a divorce *a mensa et thoro* (from bed and board). The greatest legal authorities have lately affirmed this maxim of the English law, on the ground that it is consonant with the gospel, and further, because the unfaithful wife may impose false heirs on her husband, while the husband's misconduct can only personally affect the wife, a doctrine eminently savoring of hereditary legislation. The social question of adultery is determined by the moral tone of the country. Although probably no foreigner can judge infallibly of the manners and habits of other countries, there are undoubtedly countries in which the marriage vow is held in very light esteem. Voltaire tells us that in his day the word adultery had become unfashionable, and unfit for ears polite. Even in our own day, there are communities among whom the fact is so common that the opprobrium is lost. In countries where public opinion is more energetic, it is seldom levelled at the man. In polite society, the absurd practice of the duel puts the aggrieved and the offender on a level; otherwise, the seducer is exempt from condemnation, while the weaker offender always remains a monument of folly or weakness, serving to point a moral.

ADVANCEMENT OF SCIENCE, ASSOCIATIONS FOR THE.—THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE was formed in 1831, principally through the energy of Sir David Brewster, supported by Sir Humphrey Davy, Sir John F. W. Herschel, Mr. Charles Babbage, Messrs. Forbes, Johnston, and Robison of Edinburgh, and Mr. Murchison of London. No effective society for the promotion of

science then existed in England, and it was the sense of this deficiency that led to the formation of this new body. The main feature which distinguishes it is an annual gathering of its members, at which each one who has made what he supposes a real advance, reads his paper for the criticism of laborers in the same department of science. New suggestions are thus made to those most likely to avail themselves of that aid, and the claims of each discoverer are tried by a jury of his fellows. The association also procures reports upon the state of each particular science, its progress, and its needs, as a guide to inquiry. The effect of the formation of this society upon the state of science in England, has been very marked. The first meeting, in Sept. 1831, consisted of about 200 members; the second, June, 1832, numbered 700; the third, 900; and the fourth, in Sept. 1834, 1,390. The transactions are annually published in octavo volumes of about 500 pages, and contain a record of nearly every important step taken in British science during the past 25 years. In the reports, included in these transactions, are also found the discoveries of continental and American men of science.—THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE was formed in Sept. 1847, by the association of American geologists and naturalists. The first meeting of the new association was held in Philadelphia, in Sept. 1848, and although the original association of geologists consisted of only 21 members, 461 names were enrolled in the first list of members of the new society. Among the members of the old association were Lewis C. Beck, James Hall, Walter R. Johnson, Henry D. Rogers, and Richard O. Taylor. The new association embraces nearly every scientific man in the United States. The second meeting was held at Cambridge, August, 1849; the third at Charleston, March, 1850; the fourth at New Haven, Aug. 1850; the fifth at Cincinnati, May, 1851; the sixth at Albany, Aug. 1851; the seventh at Cleveland, July, 1853; the eighth at Washington, April, 1854; the ninth at Providence, Aug. 1855; the tenth at Albany, Aug. 1856; and the eleventh at Montreal, Aug. 1857. The objects and methods of the association are identical with those of the British society. The proceedings of each meeting form an octavo volume of about 800 pages, and this series of volumes contains the most valuable results of American scientific inquiry during the last 10 years. The mathematical papers are not usually published in detail, but the titles of all papers offered at the meeting are published, and thus the volumes furnish at least a record of the growth of American science during the last dozen years, a growth partly due, as is well known, to the influence of this association. The usual number of members is about 700.

ADVEITAM, the name of a philosophical sect among the Hindoos, who deny the existence of the material universe, regarding it only as a

phantasm, and ascribing real existence to the Deity alone.

ADVENT, the period of 4 weeks preceding Christmas, appointed by several Christian churches to be observed in honor of the approach of the anniversary of Christ's nativity. It formerly occupied six weeks, and that is still the case in the Greek church. It commences with the Sunday nearest to St. Andrew's day (the 30th of November). In England and some parts of the European continent, marriages can only be performed by special license during this period.

ADVENTURE, BILL OF, a writing signed by a merchant, whereby goods shipped on board a certain vessel are shown to be at another's venture, the merchant himself being answerable only for their produce.

ADVENTURE BAY, S. E. coast of Australia, lat. 43° 21' S. long. 147° 29' E., discovered in 1773 in Captain Cook's expedition. The anchorage is good and well sheltered, with abundance of wood and water. At the head of the bay there is a fine sandy beach, but the shores elsewhere are hilly, and covered with tall trees and vegetation. The waters abound with fish, and on shore kangaroos and feathered game are plentiful.

ADVENTURERS, persons who lack the necessary discipline and balance of mind, to submit themselves to the laws of society, while at the same time they are devoured by the ambition of distinguishing themselves, of making a fortune or a sensation. They stand in the same relation to the chevalier d'industrie as the pirate to the pickpocket, while to men of genuine ambition they compare as a coxcomb to a man of the world, or a poacher to a sportsman. Adventurers are rarely without a redeeming love of glory, and if they are successful they become heroes like Napoleon. On the other hand, they seldom listen to the appeals of conscience, and if they are unsuccessful, they become scamps like Cagliostro. In the historical records of men of brilliant fame, we find as many adventurers as persons of infamous repute in the police returns. They are to be found daily in the walks of private life, as well as in the realms of fiction. Micawber, in David Copperfield, would have been a great adventurer, if he had not been destined to become the great Micawber. He was always waiting for something to turn up. This peculiar state of expectation is, in fact, the normal state of mind of an adventurer. As long as this state of suspense lasts, he keeps wisely in the background, ransacking earth and heaven, his brain aching with thought, his heart swelling with hope, his very soul bursting with ambition, but as all the while his pocket is empty, and as he does not perform any honest labor for the purpose of filling it, his life is that of an outlaw. His name, nay his very existence, is utterly unknown, except to his unfortunate family and his miserable creditors. But of a sudden his corroding ambition is grat-

ified, the dreams of his life are realized. Something has turned up. He jumps into some conspicuous or notorious position. The fact of his existence is a new revelation to mankind. His name falls like a bomb upon the public ear. "Who in the world is he?" ask a thousand voices, and echo answers: "An adventurer." If he is a person of military turn, he becomes a filibuster, like Lopez or Walker. If of an energetic, semi-intriguing nature, he becomes a rajah, like Sir James Brooke of Sarawak. If his predilections are of the financial order, he becomes a railway king, like Hudson, or a colossal swindler, like Law. If of a religious disposition, he becomes a prophet like John of Leyden, or Joe Smith. The word adventurer is derived from the latin *advenire*. The knight-errants were called adventurers, and the poets of the middle ages exalt the "Dame Aventure," as she was called, to the dignity of a goddess, and represent her as a woman of angelic beauty, possessed, like Gyges, of the power of making herself invisible, by putting on a mysterious ring, which enables her to travel incog. all over the world, and to observe, without being observed, the doings of mankind. In order to make her divine Paul Pry mission more comfortable, she carries a staff in her hand, which has the magic power of helping her over land and sea. The troubadours were called adventurers. The explorers of foreign lands, like Americus Vesputius, Almagro, &c., the Algerine pirates, the buccaneers, the filibusters, and the *frères de la côte* in the Antilles, the corsairs of the French Republic and empire, the *corps francs* in France in the years 1803-15, were all called adventurers. Many of the "bad subjects" who joined the crusades, were called adventurers. Walter the Penniless was considered, in those remote times, the very ideal of an adventurer. In the 10th and 11th centuries the name was applied to mercenary soldiers in Italy. When the unity of Italy was destroyed by civil wars, and the country turned into little principalities, whole armies of adventurers swarmed forth from beneath the rubbish of the empire, like a swarm of flies from a dung-hill. The land *par excellence* for adventurers is France. This was as true of the times of Hugh Capet, whom Dante calls the son of a butcher of Paris, as it is of the times of Louis Napoleon, the nephew of a soldier of Corsica. From the beginning of the 12th century to the end of the 14th, from Louis the Young to Charles V., the great mass of adventurers made it necessary to distinguish them from each other by various names, and frequently by the names of the province which had the happiness to lose them, or of that which was doomed to receive them, as: The Allaguais, Aragonais, Armagnacs, Bandes noires, Bandits, Bandouillers, Barbutes, Basques, Bidaux, Brabançons, Brigants, Cantatours, Chaperons, Compagnies blanches, Condottieri, Cottereaux, Escorcheurs, Grandes compagnies, Guilleris, Lances vertes, Lansquenets, Laquais, Linfards, Mainades, Malandrins, Margots, Mille

Diablos, Navarrois, Paillers, Pastoureux, Piquichins, Retondeurs, Ribauds, Rontiers, Rustres, Soudoyers, Tard-venus, Tondeurs, Tuchins, and Variets, all brigands, who, like the Lazzaroni of Naples, were ready at all times for any little filibuster or banditti job for a certain consideration; but much toil was required to obtain their services, as with the recklessness of the highway robber, they blended a savage sense of independence and a romantic love of roving. Politicians, princes, and generals got hold of them by playing upon their individual passions and wooing them separately. It was a hard task to bribe them in a lump. If they were not too much engaged in fighting each other, they were generally fighting as hirelings. The adventurers were then, what the Swiss in Italy and France are in our days. Whenever a bloody job had to be done, the services of the adventurers were called into requisition. During the 12th, 13th, and 14th centuries, they figure conspicuously on many occasions. Sismondi sketches a famous *condottiere*, Guarnieri, who organized a species of ambulating empire with an army of adventurers from Italy. According to Hallam and other historians, these armies covered Italy with disgrace and infamy. After having plundered France, they desolated Germany. In 1348, Guarnieri and his adventurers made their appearance again in Italy, and this time they favored the papal states with their presence. In the 16th century, Francis I. took measures to stop the nuisance, and the citizens of Autun were the first to turn out in a body against this desperate gang. Francis kept them in awe, but as soon as this monarch was put into prison the adventurers turned up again. When Charles V. invaded France, Francis himself was brought to the humiliating necessity of employing as soldiers, the very men whom he had hunted like wild beasts. It was not till the reign of Henry IV. that France was purged of their presence by incorporating them into the regular army, and breaking the dangerous spell of their banditti, gypsy life. They were a set of monstrous rogues; dirty like pigs, half naked like savages, swearing like fiends, carousing like demons; they looked like a gang of drunken galley-slaves let loose on their orgies, and bent upon plunder and murder. Macchiavelli says that Italy would never have been invaded by Charles VIII., never have been desolated by Louis XII., never have been oppressed by Ferdinand, never have been insulted by the Swiss, if it had not been for the infernal adventurers. The tendency of adventurers in modern time is perhaps more to shine as financiers than as soldiers, excepting during the Russian war, when the Crimea was full of all sorts of them,—bold journalists in search of bloody paragraphs, third and fourth rate feuilletonists and artists in search of some melo-dramatic incident, or of pictures to rend the hearts of grisettes, of daughters of the regiment in search of customers, and other lady adventurers making love to grim

warriors. But the financial temperament preponderated even upon the classic grounds of Alma and Balaklava, where at the points safe from the intrusion of bullets, little Jew adventurers tremblingly peeped into the smoke of the battle field in the hope to find something by which to turn an honest penny. Along the shores of the Mediterranean, in Greece, Turkey, and Armenia, the name of adventurer is frequently applied to persons who by some sudden turn of fortune achieve financial eminence. In Asia, in Tiflis, Bombay, Madras, Calcutta, Lahore, &c., hanging around the courts of the native princes, and the offices of the rich Persian brokers, a great number of adventurers are found, chiefly English and Scotchmen, broken down military men or decayed merchants, or diplomatists upon their own account. At Cairo near the court of the pasha of Egypt, in Alexandria and Constantinople, adventurers, chiefly French, Italians, Germans, Greeks, with a fair sprinkling of orientalized English, still reap golden harvests. As a general rule, French adventurers succeed by finesse, Italians by treachery, Greeks by tact, Germans by deep-laid plots, English by pluck and rascality. In almost all Asiatic and South American countries, European adventurers are as plenty as blackberries. Courts like that of King Soulouque, of Hayti, or of Queen Pomaré, of Otaheite, are perfect gold mines for adventurers, principally French. Wherever the throne of a country is occupied by persons of questionable capacity or questionable morality, adventurers flit around it, like the moth around a light. Athens, Madrid, Lisbon, Parma, Naples, afford ample evidence of this fact. The chief confidant and minister of the late duke of Parma was an English groom, and there are many more such instances of the success of adventurers, wherever the imbecility or profligacy of a court countenances their presence. London, Paris, Rome, St. Petersburg, Berlin, Rio de Janeiro, New York, San Francisco, Melbourne, New Orleans, and many other populous cities, are the favorite resorts of commonplace adventurers. But the more knowing ones flourish in distant and isolated parts of the east, where there is less competition, and where some stray savage prince or princess, some doting pasha or foolish mandarin, offers an easier, and at the same time a more brilliant field for their peculiar genius. London is a great focus for commercial adventurers, who make their appearance on 'change under the auspices of some East Indian or American house, and vanish without even having given evidence of their power by a right-down failure. They simply disappear, gliding out of 'change with the same eel-like smoothness with which they have insinuated themselves into it, but after a year or so, the gay deceiver hires an office at San Francisco or Havana, or makes his appearance again in London. In all the great capitals of Europe, and of late also in the United States, adventurers abound in the shape of

German barons, Polish counts, and Italian or French marquises, while the American adventurer's badge is often concealed under the unassuming business-like pretence of selling some patent invention. In the fashionable watering-places of Europe, like Baden-Baden, Wiesbaden, and Spa, adventurers are as abundant as croupiers at the gaming table. Some go there to look out for acquaintance with influential persons, others preserve an elegant neutrality, and seem only desirous to secure the benefit of the tacit prestige of their presence among a host of notabilities. All over continental Europe, in almost every first-class hotel, there is a constant supply of Irish, English and Scotch adventurers, scanning the advertisements of newspapers with argus eyes, and waiting for something to turn up, until the patience of the landlord is exhausted, when they favor some other place of the continent with a short visit. But although they are short of money, these men are not chevaliers d'industrie; they are adventurers who temporize and keep in the background until their plans are ripe. Female adventurers are also pretty numerous. Nell Gwynn, Lady Hamilton, Madame de Pompadour, Lola Montez, all come more or less under the category of adventurers. In Italy female adventurers abound among the princesses and highest nobility. In Europe and America they occasionally make their appearance as governesses and teachers of foreign languages. In new countries, like America and Australia, the adventurer is most in his element. In America, as soon as a new territory springs into existence, the adventurers of all parts of the Union run there en masse. This was so in the case of California, Oregon, Texas, and recently in the case of Kansas and Nebraska. Men of unruly nature, they cannot brook the fetters of civilization, and in the comparative anarchy which prevails in a new territory, they feel as much at home as the wild beasts in the wilderness of Africa. On the whole, however, in America, where most men are obliged to work for a living, the term adventurer is not so frequently applicable as in Europe, where the ambition to leap at one bound over the wide gulf existing between the different classes of society, constitutes a great temptation to adventurous propensities. Adventurers are, as a class, unprincipled, but downright jovial fellows, with a slight tinge of romance in their nature, which, at once, wins the sympathies of sentimental ladies and credulous gentlemen. Since the days of Don Quixote de la Mancha, the aims and occupation of the adventurer have undergone many changes, but he flourishes now as he did then, although his career in our days is rather pecuniary than knightly.

ADVENTURERS, SOCIETY OF, originated in Burgundy in 1248, and was an association of traders for the discovery of unknown lands, &c. Subsequently it was removed to England, and called merchant adventurers.

ADVERB, in grammar, a word qualifying the meaning of a verb, participle, adjective, or other adverb, by expressing some condition as of manner, time, place, or quality. Thus in the sentence "he writes well," the sense of the verb "writes" is enlarged and modified by the adverb "well," which succeeds it. The adverb derives its name from the preposition *ad*, to, and *verbum*, a verb, and is usually placed near the word which it qualifies.

ADVERTISEMENT. The announcements in the public journals, known as "advertisements," did not spring up until long after the institution of newspapers, which existed, but scarcely flourished, in Italy and Germany, prior to their establishment in England. The first regular London newspaper did not appear until 1622, in the reign of James I., under the name of the "Weekly News." It contained intelligence, but not a single advertisement. Nor was it until 80 years later—the republic having been established in the interval—that the people used the press as a means of making known their wants, and of giving publicity to their wares. The earliest English advertisement appeared in 1652, in a journal issued by the parliament and entitled *Mercurius Politicus*, and announced a book eulogizing Cromwell's victories in Ireland. In the eight succeeding years to the restoration, booksellers were the principal advertisers. Next came what are still called "hue and cry" advertisements, inquiring after runaway apprentices, house-thieves, horse-stealers, &c. Then followed notices of journeyings by stage coaches, first established on the great roads, under Cromwell's rule, when a trip to Salisbury occupied two, and a journey to Exeter was completed in four days; the first distance being now achieved in three, and the latter in seven hours. In these early days of journalism, though books were freely advertised, few tradesmen in London turned the newspaper to account in making known their goods to the world. The very first who did so, only a year before the death of Cromwell, announced that the "China drink called by the Chineans *Tcha*, by other nations, *Tuy alias Tea*," was sold at a "Cophee-house" near the Royal Exchange, an intimation which shows that coffee as well as tea was then getting into use. On the restoration of Charles II., advertisements greatly increased in number and variety, though not a single newspaper was published out of London during the reign of Charles, nor indeed for nearly fifty years after. The "London Gazette" itself, at the revolution of 1688, was the only printed paper (there were a few in manuscript), and was then, what it has ever since continued, the court or official journal. In the reign of Charles II. advertisements of theatrical and other public amusements first appeared—play-houses, exhibitions, and the lottery occupied considerable space. When the great plague decimated London, announcements of antidotes and remedies became frequent. Newspapers were discountenanced during the reign of James II., and seldom as many as a

dozen advertisements appeared in any single periodical. While the licensing act was in force, the only newspaper was the "London Gazette," edited, says Macaulay, "by a clerk in the office of the secretary of state, and which contained nothing except what the secretary of state wished the nation to know." In April, 1695, this censorship of the press expired, and a considerable number of newspapers sprang up, feeble enough, it is true, as compared with the energy, expedition, and intelligence of later journals, but decided improvements on all that had preceded them. As the government became settled and firm under the sway of William, the press also grew into importance. The stability of the royal rule encouraged enterprise, which gladly availed itself of the newspaper to advertise its desires and designs, its aims and plans, its expected individual gain as well as the various benefits which it promised to bestow on the public. A proof of the progress of advertising may be found in the fact that a gratuitous journal was set up, limited to advertisements, and the wonder should be, not that it was so unremunerative as to fall to the ground, but that it had so much patronage extended to it, as to keep it alive for two years. The idea was premature, but there are now in Dublin and Edinburgh two advertising journals, with extensive gratuitous circulation all over the United Kingdom, established at vast cost, but now permanent and profitable "institutions." From 1701 (when announcements of theatrical amusements began to appear regularly), advertisements may be considered as declaring the wants, the losses, the amusements, the literature, the money-making eagerness, the fashions, the prevailing foibles, the charities, the occasional eccentricities, the political tendencies of the people. As early as 1710, Addison devoted a number (324) of the "Tatler" to a review of the current advertisements of his time, their objects, their tendency, and the *ad captandum* style in which they were drawn and printed, "with little cuts and figures," with which a provincial editor would scarcely disfigure his journal at present. "As we read," says a recent periodical writer, "in the old musty files of papers, those naïve announcements, the very hum of bygone generations seems to rise to the ear. The chapman exhibits his quaint wares, the mountebank capers again upon the stage, we have the living portrait of the highwayman flying from justice, we see the old china auctions thronged with ladies of quality with their attendant negro boys, or those 'by inch of candlelight' forming many a Schalken-like picture of light and shade: or, later still, we have Hogarthian sketches of the young bloods who swelled of old along the Pall-Mall. We trace the moving panorama of men and manners up to our own demonstrative, but more earnest times, and all these cabinet pictures are the very daguerreotypes cast by the age which they exhibit, not done for effect, but faithful reflections of those insignificant items

of life and things, too small, it would seem, for the generalizing eye of the historian, however necessary to clothe and fill the dry bones of his history." In truth, much may be learned from the newspaper advertisements of former times; the variations of taste, and the extravagance of fashion, the luxuries and the wants of society are recorded there, which "he who runs may read." For example, in the London newspapers of 1709, we find notices of runaway negroes, and of negroes to be sold, apparently as much matter-of-course announcements as if they appeared in the present day, in a newspaper published in New Orleans, Charleston, or Savannah. In 1745, the "General Advertiser" was commenced in London, the first successful attempt to depend wholly for support on advertisements. Here, also, was the first classification of such announcements, ever since a necessary feature in the modern newspaper. Twenty years later, English journalism was fully established, in the provinces as well as in the capital; and at the commencement of the present century, advertising had become a system, reflecting the "very form and pressure of the time." The history of advertising in England is very nearly identical with its history elsewhere. There was the same slow growth, with the national character stamped as it were in the same way upon it. In France there may be a greater dash of gaiety—in Germany, there is an evident infusion of sentiment—in Russia, an unmistakable impress of authority, shown by strangers' announcements of their intended departure, without which their exit from the country is forbidden—in Australia, crowds of notices emanating from the gold diggings—in South America, the illustration of announcements by the antiquated media of poor engravings. In the United States, where journalism has thriven in a more remarkable manner than in any part of Europe, the rise and progress of advertising has been proportionably rapid. A New York newspaper, issued just a century ago, contained a few advertisements straggling over four small pages—a ship announced to sail about a particular date; a tradesman having received an invoice of goods, which he would dispose of cheap; an apprentice run away, with a reward for his apprehension; and the escape, from Hackensack prison, of rogues from "the Jerseys." At present, hardly inferior in general character to their most celebrated rivals across the Atlantic, the American newspapers, particularly the leading ones published in New York, contain, proportionably, more advertisements than those of London. One principal reason for this, is the greater cheapness of advertising in this country. For with that ingenuity which, in England, subjects every thing to taxation, no sooner did advertisements constitute a feature in newspapers, than a duty of nearly one dollar was imposed upon each announcement—no difference being made for length, so that the millionaire who made public the intended sale of his estate, paid no higher tax than the out-of-

place servant girl who sought for employment. In 1886, this tax was reduced from three shillings and sixpence to one and sixpence on each advertisement, and this last was wholly abolished in 1853, since which time British advertising, considerably cheapened, has much increased. The whole amount accruing to the British revenue, from this duty, when removed, was under £200,000 per annum, a sum much too inconsiderable compared with the check it put upon business. The London "Times," which is very generally cited from the great number of its advertisements (it had over 2,575 in a single day, May 24, 1855), has a daily circulation of about 70,000, and, with six readers to each copy, an advertiser addresses 420,000 persons through its columns. Avoiding what is called the "display" of its advertisements, its charge is no greater, in ordinary cases, than that of many journals of very inferior circulation. In the railway-mania of 1845, however, it charged so heavily, that it received in the month of October alone (four weeks) over £25,000 for advertisements. Its present receipts may average £5,000 a week from all sources. It is generally known that the profits of a daily journal arise mainly, if not altogether, from the advertisements. It is not so well understood, but is no less true, that those who succeed in obtaining the largest trade from the public, advertise most constantly; and though such publicity, on the whole, is more general in this country than in Europe, the individual expenditure, on this account, is rarely so large. For example, with the exception of one New York newspaper-proprietor, who by copiously advertising it at vast cost, has forced his journal into a large sale, there is no instance in America of a person annually disbursing \$150,000 per annum for advertising his pills;—of another expending \$50,000 for recommending Macassar oil, to improve the growth of hair;—of a third paying \$50,000 for advertisements of the sanative effects of cod liver oil;—of a fourth paying a like amount to induce the public to patronize his tailoring establishment. Yet such disbursements have been made by London tradesmen and speculators year after year, and with undoubted success. It is only in Great Britain and the United States, that advertising has flourished largely. The European journals, generally, have not cultivated the art, or rather, their readers have not much regarded it. In Paris, where it might be expected that the thousand-and-one elegancies of use or luxury would be announced through the journal, the advertising is comparatively scanty, and their extensive display—with large type and extra wide columns—is what newspapers chiefly depending on profits from advertisements could not afford, space being money to such. When the announcement of a few books is spread over half a page, in particularly full-grown type, it may be presumed that the journal mainly depends on its sale. The charges for advertising are generally larger in England than in America. The quality as well as the extent of circulation

should be borne in mind when prices are concerned. Some journals have what may be called class-circulation, and advertisements, to answer their purpose, should be addressed to those who are likely to be interested in them. Thus, a theatrical manager who advertised in the "Record" in London or the "Churchman" in New York, would literally be wasting his money, as the ordinary readers of these religious journals are not play-goers. Again, a publisher wishing to advertise a new book, finds that the London "Times" will charge three times as much as another paper. But the "Times" has a circulation among all classes of 70,000, while the other journal, charging one and sixpence, may circulate only 1,000 copies—the average of country newspapers in England and the United States. Therefore, to give the announcement as great publicity as the "Times" commands (to say nothing of the fact that the metropolitan journal is read by the wealthier classes) the publisher should advertise in 70 of the low-circulation journals, and whereas he should pay 5 shillings to the "Times" he must pay 850 shillings to all the other papers, and yet derive less benefit for the increased outlay. The "Illustrated London News" charges at the rate of a dollar a line for each advertisement, but the mere paper on which it is printed costs the proprietors 8 dollars an inch (exactly a third of the gross payment made), and estimating the circulation of that journal at 180,000, every advertiser addresses 900,000 persons through its columns, at the usual allowance of 6 readers to a newspaper, though it is probable that the journal in question, from peculiar circumstances, may be yet more generally perused. In England and America some newspapers are distinguished by class advertisements. The "Times," in its multifarious announcements, may be taken as a microcosm of English society, more especially of that in London. But the "Morning Post" almost exclusively monopolizes the advertisements which relate to fashion and high life; the "Morning Advertiser," the organ and property of the liquor venders, obtains the lion's share of whatever is connected with that craft; the "Morning Herald," even yet, though its circulation is greatly reduced, contains a goodly array of auction sales of property; the "Era" and "Sunday Times" contain a majority of theatrical announcements; the "Shipping Gazette" chronicles the times, rates, and ports of departure, for the commercial marine; "Bell's Life" contains little out of its news columns, but is paid for intelligence of forthcoming events in the sporting world; the "Athenæum" has the principal portion of the book advertisements, and so on through an extensive series. So, too, in New York, which is the London of America, as regards journalism. The "Herald" and the "Sun" engross the greater part of the "wants" and "boarding" advertisements; the "Tribune" and "Evening Post" have a considerable proportion of the literary and real estate announce-

ments; the "Courier and Enquirer" has long been a favorite organ of the auctioneers; the "Journal of Commerce," "Commercial Advertiser," and "Express," have their full share of the shipping notices; and the "Daily Times" has exclusive possession of the bank returns, published every week by legislative authority. The list of newspapers with such specialties might readily be extended. All through the United States, the best and most prosperous newspapers are those which contain the greatest number of advertisements, which, indeed, provide the pecuniary means for the requisite expenditure on literary labor, and general and special intelligence. It is not easy to say what is, or is not, an advertisement. In Europe, the usual custom is not to publish any of the delicate announcements (there called "puffs," and here classed as "business notices"), without prefixing the word "advertisement," as an intimation that it is not an editorial opinion, but the praise of an interested party, with its insertion duly paid for. In most newspapers of this country no such prefix heralds the puff, but it is generally understood, from its position in the sheet, and the type employed, that it is only an ingenious way, at considerable increase of cost, of drawing the reader's attention to the announcement. These "business notices" attract additional attention, but their real character is generally known. Though appearing, for the most part, in newspapers, advertisements are not exclusively confined to these organs of communication. They stare us in the face from dead walls; they are insinuated into our hands as we walk the streets; they appear at theatres, on the scenes of plays and pantomimes; they are posted in steamboats, stages, railway-cars, and hotels; they are inked upon the pavement; they glare on us from the rocks in railway cuttings, as we pass rapidly along; they have been showered down from balloons; and "try Warren's blacking," was painted, in mammoth letters, on the summit of the pyramids of Egypt, was noticed by Lord Byron on the Acropolis of Athens, and was seen by Mr. Thackeray painted up over a half obliterated inscription to Psammetichus on Pompey's pillar. Formerly, the advertising sheets of popular periodicals were bulky and profitable. By such additions, reviews and magazines assumed a factitious extent, and it may be remembered that when the "Pickwick Papers" were in the fulness of prosperity, with a circulation large beyond precedent, some numbers of 96 pages each, obtained the extensive bulk of stout octavo volumes by the extent of their advertising sheets. The newspaper, however, by general consent and custom, is the receptacle and recognized organ of advertisements. Nor, seeing the variety of interests which they represent, can the future historian, anxious to learn more than statelier and more formal annals can show, neglect a searching and analytic examination of newspaper advertisements, transitory and fugitive though they may seem

in the present hour. They will be found to reflect back to the curious research of future inquirers, various phases of the manners, morals, customs, amusements, literature, inventions, charities, and vices of the time.

ADVOCATE, counsellor, counsel (Fr., *avocat*, *avocat*, *procureur*, Ger., *advocat*), is a person who conducts the cause of another in courts of law. The title is taken from *advocare*, to plead for, and the practice of the modern advocate is traceable to the practice of the ancient patrician of Rome, to assist and defend his clients or dependents by his advice, and afterward by his open pleading of their causes before the tribunals. It was to this the old legionary alluded when he asked Augustus to assist him in a cause which was about to be tried. Augustus deputed one of his friends to speak for the veteran, who, however, repudiated the vicarious patron: "It was not by proxy that I fought for you at the battle of Actium." Augustus acknowledged the obligation, and pleaded his cause in person. This relation of patron and dependent degenerated into a practice of hiring the aid of patrons, who were influential either by their oratory or their social position. This feeling of advocates was prohibited by several Roman laws, but without success. In modern times, the advocate is regularly trained and qualified for the practice of the law. In civilized nations, the laws, however simple in principle, become complex from the ramifications of society, and the endless variety of attendant circumstances with which each particular case is enveloped; and the desirableness of uniformity being admitted, judicial decisions have the force of original laws, and so amplify the laws themselves that their study becomes a speciality. How far this state of things is necessarily the case need not be here inquired.—The duties of advocates are of a two fold character: the preparation of cases for trial, and the pleading in open court. With us the two duties are of right discharged by the same individual, except in the supreme court of the United States, although for convenience they are occasionally separated. In other countries, as in England and France, the business of the attorney or practitioner, and of the counsellor or pleader, are distinct branches of the profession. The counsellor is considered as following the more honorable profession, and the dignities and emoluments of the law are exclusively confined to him. The reason of this advantage is not quite obvious. For the practice of the law in all countries a preliminary preparation is required, and an examination must be undergone. The duration of this probationary period, and the reality of the examination, vary considerably in different countries. The advocate is bound to exercise reasonable skill and diligence in behalf of his client, and failing this he may be sued for the damage his client has sustained by his negligence. In the performance of his public duty he is allowed a very extensive freedom of remark and of inquiry, and

this freedom of speech at the bar, has been justly esteemed one of the most solid bulwarks of liberty, and has often been exercised by independent and high-spirited lawyers in defence of their clients against despotism or oppression. The obligation of a lawyer to his client has been the subject of much discussion. Dr. Johnson broadly affirmed that a lawyer's duty to his client was to do the best he could for him. Public opinion has, however, prescribed a limit to this, and it may be well doubted whether the professional tactics habitually pursued in the advocacy of a client's case are not a flagrant violation of the golden rule; and whether the duty of the citizen ought not always to be paramount to that of the advocate. The maintenance of notorious falsities as irrefragable truths; the imputation of personal dishonor to the opposite parties; the injury of witnesses' characters under pretence of a search after truth; the thousand ingenious devices to screen guilt or to fasten odium on an antagonist, surely transcend that which should be the scope of the lawyer's duty to his client. In the courts of the United States the fees of advocates and attorneys are open to every kind of arrangement. By the New York code of procedure, a certain moderate fixed remuneration is allowed for certain definite services. But, beside this, it is also provided that other more liberal remuneration may be claimed for services rendered, to which provision a somewhat latitudinarian interpretation has been given. The advocate may also make any bargain with his client, precisely as any other agent or employee may do. In the courts of Europe this is discouraged. In England, the attorney is allowed a fixed scale of charges; all bargains for any thing beyond these charges, or in anywise dependent on the success of the suit, are illegal; and, even after payment, an attorney's bill of charges may be reviewed and moderated by the officers of the court in which the business is done. The stringency of legislation on this head has increased rather than decreased in late years. The counsel may not recover any fees whatever; the theory of his calling is, that he labors gratuitously for the benefit of suitors. In practice, his fees are all paid beforehand, for as there is no contract between the counsellor and his client, the fees are irrecoverable, in case the counsel neglects his duty. His fee is a *quidam honorarium*, and the maintenance of this theory has been considered by the highest authorities essential to the honesty and integrity of the bar, although to the uninitiated the reasoning may not seem perfectly conclusive.—It is natural that lawyers, having practised powers of speech, should take a prominent lead in public affairs. But it has been remarked that lawyers, especially practising lawyers, are not remarkable for the breadth of their views, or a statesmanlike grasp of intellect, but rather for a keen perception of the weaknesses of human nature, and for an apprehension of the right use of words. Not only in the United States is

there a very large proportion of lawyers engaged in public and political life, but in Europe, where class interests and landed property are commonly supposed to have greater weight than with us, the same fact is observable. In the last British house of commons there were no less than 111, or rather more than one-sixth.—In most European countries, there are societies of lawyers having for their objects the defence of the legal profession and the maintenance of its privileges. The laws of court in London are very ancient, and the heads of the societies have the exclusive privilege of judging of the capacity of students and of calling them to the bar. The qualification formerly was a three years' residence and study in the laws of court; but this had of late years degenerated into a form; presence in the common hall and eating the society's dinners for twelve successive terms, being accepted as evidence of the study. Hence, in process of time the capacity for dining came to be regarded as the qualification. This absurdity notwithstanding, the bar of England has never been wanting in talent of the highest order; and of late years the prandial course of study has been amended, and a return to the ancient system adopted, and a rigorous examination of candidates prescribed. In France there are similar societies. Napoleon established *chambres des avoués*. These chambers are attached to each court, and have the power of suspension or dismissal. An appeal against the decision of the chamber is permitted to the party aggrieved. In Belgium, Geneva, and Italy, they have councils of discipline.

ADVOCATES' LIBRARY. The library of the faculty of advocates at Edinburgh is the largest and most valuable in Scotland. Though strictly private property, it is open to the public. There are about 150,000 volumes, and it is inferior only to the library of the British museum and the Bodleian. The most complete department of the library is the historical, comprising every work of importance published in Europe. The law department is very rich. The MSS. are not numerous. The library is under the charge of five curators, a keeper, an assistant-keeper, and two or three under-assistants. The funds of the library are derived from the faculty of advocates, who set aside £3,000 per annum for its use. The books are freely lent to advocates and to all persons introduced by advocates, and notwithstanding this liberality, there have been few losses. David Hume, the historian, was one of the keepers.

ADVOCATUS DIABOLI, in the Catholic church, the speaker or writer who shows cause against the canonization of a person proposed for sainthood. The advocate who defends the proposed saint is called *advocatus Dei*. The *advocatus diaboli* insists upon the weak points of the good man's or woman's life. Hence the name is sometimes popularly applied to all those who delight in detracting from the characters of good men.

ADVOWSON, in English law, is the right of presenting to a vacant living in the church. Advowson, according to Blackstone, signifies taking into protection or patronage. When the lord of a manor built a church and endowed it, he acquired a right of nominating the ministers, provided they were canonically qualified. Advowsons are property, and as such purchasable, provided that certain laws for the prevention of simony are not infringed in the purchase. These laws are, however, more frequently evaded than obeyed. The most ordinary form of advowson is the presentation of a duly-qualified clergyman to the bishop for institution into the living. The bishop has the right of himself presenting to the living; and in a few rare cases, the patron has a right of presenting a person without the bishop's interference. The benefices of the church of England are in every case subjects of presentation. The incumbents are maintained by tithes, or since the tithes commutation act, by taxes in lieu of tithes. The elective right of the congregation is unknown in the church of England, except in regard to those clergymen who perform duties in excess of the regular duties of the rector or vicar; such for instance as lecturers, who are paid by voluntary contributions. The benefices of the church of England are 11,342, of which there are in the patronage of

The crown, . . .	1,048	Universities, . . .	597
Bishops, . . .	1,301	Other colleges, . . .	146
Deans and chapters, . . .	983	Private persons, . . .	6,619
Chapels in private patronage, . . .			649

The valuable patronage of the crown is exercised by the lord chancellor, formerly an ecclesiastic and keeper of the king's conscience.

ADY, a palm tree which grows in the island of St. Thomas. The Indians extract a juice from it which they use as a beverage, and an oil which makes a substitute for butter. Its fruit is used as food.

ADYTUM, the most secret chamber of a temple, which only the priests could enter. It seems to have been almost exclusively confined to the temples of the Egyptians.

ÆACUS, according to the ancient tradition, son of Jupiter and Ægina, and first king of the island Ægina. He was renowned for his justice, so that he was called upon to settle disputes not only among men, but even among the gods. His reputation was such that, on the occasion of an excessive drought in Greece, he was appointed by the oracle of Delphi to intercede with the gods for rain, and his prayers were successful. After his death, Pluto made him one of the three judges of Hades. He was regarded by the Æginetans as their tutelary deity.

ÆDILES (Lat. *ædes*, a building), Roman magistrates who exercised various functions, among which were the superintendence of buildings, especially those of a public character, the care of the highways, the regulation of the price of provisions, and the custody of the decrees of the people.

ÆGEAN SEA, the name anciently given to that part of the Mediterranean now called the Archipelago. Many islands dot its surface, some of which were undoubtedly formed by volcanic action.

ÆGÆON, a fabulous giant of antiquity, son of Titan and Terra. He is described as having possessed one hundred hands. He was vanquished by Jupiter, and loaded with chains.

ÆGÆUS, king of Athens, and father of Theseus. Having received false intelligence that his son had been killed in his contest with the Minotaur, he cast himself into the sea.

ÆGINA, or **EGINA**, **ΕΓΙΝΑ** (Turkish *Aina*), an island in the Saronic gulf, 20 miles from the Piræus, about 8 miles from N. E. to S. W., and about 6 in a transverse direction. Its western side consists of stony but fertile plains, which are well cultivated and produce luxuriant crops. The rest of the island is mountainous. The climate is the most healthy in Greece. From its hills a magnificent prospect unfolds itself. The acropolis of Athens is 18 miles distant N. N. E.; that of Corinth 87 miles to the N. W. At the present time it numbers about 6,000 inhabitants, and has flourishing schools. Its chief interest, however, depends on its past history and its antiquities. It was a Dorian settlement, and was one of the first places in Greece noted for its maritime ascendancy. As early as B. C. 563, Ægina had a factory in Egypt. It was a great rendezvous for pirates and slave-traders; also for fugitive criminals and insolvent debtors, in this way discharging to populous Athens the same functions that the Isle of Man has long discharged to Great Britain. It had a silver coinage at a very early date; many of these coins still exist, with a sea-tortoise on the obverse. The people of Ægina, with their contingent of 80 ships, played a brilliant part in the great sea-fight of Salamis. Its earliest enemy was Athens, which state eventually, 430 B. C., took possession of the island and expelled its inhabitants. Ægina, though often mentioned in the Greek authors, never recovered any political or commercial importance. Sulpicius, the friend of Cicero, in one of his letters descriptive of a cruise in the Saronic gulf, speaks of Ægina as a monument of departed greatness. Its chief temple was that of Zeus Panhellenius. Cicero speaks of it as in ruins. In May, 1811, a company of German and British scholars, including Messrs. Haller and Linckh, Cockerell and Foster, cleared away the rubbish which had accumulated in the course of 2,000 years at the base of the temple, and after 20 days excavating were rewarded by the discovery of 16 statues of an early type of Greek sculpture. These statues are now in the Glyptothek of Munich, and have been restored by Thorwaldsen. The subject is supposed to be the struggles of Ajax, one of the *Æacidas*, the local heroic family of Ægina, to save the body of Achilles from the Trojans.

ÆGINETA, **PAULUS**, a writer on medicine,

who first discovered the use of rhubarb as an aperient. He died A. D. 680.

ÆGINETAN ART. Many ancient writers, with Pliny and Pausanias among them, speak of the Æginetan school in art as equal to any which Hellenic civilization produced. Still to us moderna, Æginetan art is a mere name like the Pelasgians and the Cyclopians. We have the names of several Æginetan sculptors classed with Phidias and his contemporaries, but no relic of theirs has escaped the conjoint ravages of time and barbarian invasion from Mummius the Roman general down to the Ottoman Turks. Good judges have decided against the right of the Panhellenian sculptures, described in the article on Ægina, to be considered as belonging to the latest and most finished school of Æginetan art.

ÆGIS (Gr. *αἴς*, *aiēs*, she-goat), the appellation of the shield of Jupiter and Minerva, which was covered with the skin of the goat Amalthæa, by which Jove was nourished in infancy.

ÆGISTHUS, son of Thyestes, and cousin to Agamemnon. He formed an adulterous connection with Clytemnestra, the wife of that prince, during his absence at Troy, and assisted in his murder, on his return. He was slain by Orestes, the son of Agamemnon.

ÆLFRIÐ, archbishop of Canterbury, died Nov. 16, 1005. At an early age he became a Benedictine monk, and gradually rose through the various subordinate offices of the church, until he was made archbishop in 994. He displayed a commendable zeal through life for the spread of learning. A translation in Saxon of most of the historical portion of the Old Testament, and a Saxon grammar in Latin, are among the works ascribed to his pen.

ÆLIA CAPITOLINA, a name given to Jerusalem by the emperor Hadrian, who, after a rebellion of the Jews in his reign, drove them from the city, and settled it with Roman colonists. It went by this title until the time of the Christian emperors.

ÆLIANUS, **CLAUDIUS**, a Roman writer in the third century of our era. His compilation, entitled *Varia Historia*, is still extant, as well as an original treatise, *De natura animalium*. These works are written in Greek.

ÆMILIUS, **PAULUS**. I. Twice consul of Rome, died B.C. 160, aged 70. He vanquished Perseus, king of Macedon, and incorporated that country with the Roman empire. II. An eminent historian, born at Verona, died in Paris, May 5, 1529. In consequence of his celebrity as a writer in Italy, the cardinal of Bourbon made him a canon of the cathedral of Paris, and employed him to write a history of the kings of France, in Latin. The first six books of his history were published during his life, and the remaining four were collected from his papers and issued after his death.

ÆNEAS, son of Anchises and Venua, a Trojan prince, to whom tradition ascribes the commencement of the Roman empire. When Troy fell, he quitted the city with his followers,

accompanied by his father and son. After visiting various countries, they landed on the shores of Latium, where they met with a friendly reception from King Latinus. They settled there, and soon became involved in hostilities with the people of the country, in the course of which Latinus was slain. Æneas was finally victorious. He married Lavinia, the daughter of Latinus.

ÆNEAS SYLVIUS (Piccolomini), born in Sienna, 1405, died Aug. 14, 1464, was raised to the papacy under the name of Pius II., in 1458. He acted as secretary at the famous council of Basel, A. D. 1431-1439, and has left an account of it, *Commentarius de gestis Basil concilii*. He was at this time an earnest advocate of the supremacy of the council, and maintained its right to depose the pope, "who ought rather to be considered as the vicar of the church than as the vicar of Christ." The emperor Frederic III. was much pleased with Sylvius, and offered him the post of imperial secretary, and sent him on many missions. He wrote several works in support of his master's prerogative. He was subsequently sent on a mission to Pope Eugenius; the pope forgave him and appointed him apostolic secretary. He gave up the German employment, as an Italian residence was preferable to him. From this time forth he became an ardent ultramontane. Nicholas V. made him bishop of Trieste, and afterwards of Sienna, and sent him as papal nuncio into Germany and Bohemia, where he had conferences with the Hussites, which he relates in his epistles. He recommended mild measures to reclaim the stray sheep of Bohemia, and wrote a work on the history of Bohemia and the Hussites, in which the doctrines of the latter are set down without exaggeration. He relates the burning of John Huss and Jerome of Prague, and speaks of their fortitude as exceeding that of any of the philosophers of antiquity. In 1452 he delivered a great oration in the presence of the pope, the emperor, and other German and Italian princes, and the ambassadors of other European courts, for the purpose of exhorting them to the defence of Constantinople against the Turks, to which object he devoted the rest of his life. Calixtus III. made him a cardinal, and at the death of that pontiff he became pope himself. The main efforts of his pontificate were directed toward forming a confederacy among the Christian princes, for the common defence of Christendom. For this, Macchiavelli praises him. The Italian princes were willing to join him, but France and Germany kept aloof. By a bull addressed to the universities of Paris and Cologne, Pius condemned his own writings in defence of the council of Basel, concluding with these memorable words: "Believe what I, an old man, now say to you, and not what I wrote when I was young,—believe the pontiff rather than the private individual, reject Æneas Sylvius and accept Pius II." He was at the trouble of writing a letter to the sultan

Mohammed II. to convince him of the errors of Mohammedanism, and engage him to become a Christian. In the year 1464 an armament against the Turks was directed to assemble at Ancona. Matthias Corvinus, king of Hungary, and Charles the Rash, duke of Burgundy, had pledged themselves to join it. The Venetians had promised a large fleet. Pius II. set out from Rome to give the expedition his blessing, but found it in a disorganized and utterly unprepared state, only a few galleys having made their appearance. This lapse from duty on the part of the European princes and republics, broke the heart of the aged pontiff, and he sank under the disappointment. Several biographies of him have been written; the most notable are those of Campanus, bishop of Arezzo, and Gobillenius, his secretary, entitled *Pii II. Pont. Max. Commentarii rerum memorabilium quæ temporibus suis contigerunt*.

ÆNEID, the great epic poem of Publius Virgilius Maro, ranks with the Iliad and the Odyssey, making one of the three greatest poems bequeathed to posterity by the ancients. The author wrote it in the time of Augustus Cæsar; it was commenced about the year 724 U. C., or B. C. 80; and it was left unfinished at the time of the author's death, B. C. 20. He was said to be so diffident as to the merits of the production that he directed his friends to burn the manuscript. The emperor Augustus interfered to save it, and intrusted its publication to two learned friends of the author. Many lines are left imperfect, and this is alleged as proof that the poem never received the finishing touch of Virgil. The burden of the Æneid is the adventures of Æneas after the fall of Troy and his final settlement in Italy, where he and his followers became, according to the received opinion, the founders of the Roman name. It deviates in many particulars from the ordinary legend concerning Æneas. In the 1st book we have the story of Æneas being driven by a storm on the coast of Africa, and being hospitably entertained by Dido, queen of Carthage, to whom he relates the fall of Troy and his wanderings in the 2d and 3d books. In the 4th book the poet has elaborated the story of the passion conceived by Dido for her Trojan guest, the departure of Æneas in obedience to the will of the gods, and the suicide of Dido. The 5th book contains the visit to Sicily and the burning of the ships, and the 6th the landing of Æneas at Cumæ, in Italy, and his descent to the infernal regions, where he sees his father Anchises, and has a vision of the future glories of his race and the greatness of Rome. These 6 first books are modelled upon the Odyssey, and are superior to those which follow. The 6 last books partake rather of the spirit of the Iliad. They are monotonous, and relate the struggles of Æneas in Italy, his alliances with Latinus, king of the Latini, and his projected marriage with Lavinia, the daughter of Latinus. The 12th and final book closes with the fall of Turnus,

king of the Rutuli, and rejected lover of Lavinia, by the hand of Æneas, after a Homeric combat, leaving the projected marriage yet uncompleted. The Æneid is often compared with the Iliad. The main distinction between them is that the Iliad was, like Ossian and the Nibelungen Lied, the spontaneous evolution of a people in its heroic and patriarchal period, or just emerged therefrom, while the Æneid is the laborious work of a scholar, living in a late period of society, and imitating the spirit of heroic times for the edification of a select class of readers. The Æneid was intended to be read in a saloon, the Iliad to be recited in snatches to a populace assembled at festivals and fairs. This difference gives to the Iliad a fresher flavor; by its side the Æneid appears to lack originality and verisimilitude. The characters of the Æneid are deficient in individuality, create no interest, and leave no powerful impression behind them. Æneas is as insipid a gentleman as one of Thackeray's heroes. In descriptions of natural scenery, and in that natural quality of a refined society, sentimentality and pathos, it is superior to the Iliad. The poem is replete with modern allusions to the glories of Rome, Augustus Cæsar, and the Julian house, to which Augustus belonged. In this respect the hits are almost as direct as those of Spenser in his Faerie Queen, at Queen Elizabeth of England.

ÆNIANES, an ancient tribe of upper Greece, of very remote and uncertain origin, whose frequent migrations, in early times, are spoken of by many writers of antiquity, especially by Plutarch, in his "Greek Questions." He asserts that they occupied, in the first instance, the Dotian plains, on the confines of Thessaly and Macedonia; that they moved thence into Epirus, and, in their last migration, went from Crissa, on the gulf of the same name, which is itself merely an embayment of the Sinus Corinthiacus, or gulf of Lepanto, to the valley of the Inachus, on which they finally settled. Their exact situation is not easily to be ascertained, so far, at least, as regards their boundaries; but, generally, they lay to the N. of Doris, the E. of Ætolia, and the S. of Thessaly; and occupied the country about the confluence of the Inachus, now called the Vistritza, with the great river Spercheius, or Elladha, which is the principal stream debouching into the Sinus Maliacus, or gulf of Zituni. That learned and accurate traveller, Col. Martin Leake, assigns to the Ænians the lower valley of the Spercheius, down to the plains of Melia, immediately N. of the pass of Thermopylæ, the upper glens, about the sources of the river, being in the possession of the Driopians. The Spercheius, or modern Elladha, is a considerable stream, and the Inachus, or Vistritza is little inferior to it in size, or quantity of water. The valley along the course of the two torrents—for all the rivers, in this part of Greece, flowing out of gorges in the mountain ranges, partake of this character—lying between the

mountain ridges of Ceta, the modern Katavothra, on the S., and those of Othrys on the N., is beautiful, and, where sufficiently irrigated, luxuriantly fertile; but it is said to be unwholesome, owing to the exhalations from the inundated rice-fields. Col. Leake discovered in the Greek village of Neopatra, on the extreme point of a ridge descending from Mt. Ceta, in a northerly direction, to the river, many foundations of old Hellenic walls and fortifications, as well as other remains of columnar shafts and inscribed stones, which indicate this wretched place to be the site of the ancient Hypata, which he shrewdly supposes to be a corruption of Hypæta, or the city under Ceta; and which further prove that this Hypata was no other than the capital of the Ænians; by which fact, also, he accounts for the non-existence of any coins of Hypata, "the money coined here having probably all had the inscription *Αἰνῶν*." The antiquity and early importance of this people are attested by the fact of their belonging to the Amphictyonic council. At a later period, they joined the confederation of the other Hellenic states, against Macedonia, which gave rise to the Lamiac war; but, according to Strabo, in his time they had no longer a national existence, having been nearly exterminated by the Ætolians and Athamanians, their northern and western border neighbors, people of wild and predatory habits.

ÆNESIDEMUS, a native of Cnosus, born soon after the time of Cicero, taught scepticism at Alexandria. He held truth to consist in the common consent of mankind as to the effect produced on the mind by objects in the external world.

ÆOLIAN HARP, a musical instrument, from which sounds are given out by the sweeping of the air over its strings. It is supposed to have been known to the ancient Jews, for the harp of David is said to have sounded of itself when the north wind blew upon it. The modern invention, however, was by Athanasius Kircher, who describes it in his *Musurgia universalis*. It was introduced into England above 100 years ago. The following is the common method of construction: A box is to be made of thin board 4 or 5 inches deep, and 5 or 6 wide, and the length of the window in which it is to be placed; on the top at each end a little strip of wood $\frac{1}{4}$ inch thick and $\frac{1}{2}$ inch high is to be glued on for the bridge for the strings, and across each end inside is to be fastened a piece of hard wood an inch square for holding the pegs. Into one of these fix as many pegs as there are to be strings, and into the other as many small brass pins. The instrument is then to be strung with small catgut, one end of which is attached to the brass pins, and the other wound round the pegs. The strings, which should not be drawn tight, must be tuned in unison. A thin board should be placed over the strings about 8 inches above the sounding-board. The box is to be placed in a

window partly open, so that the draught of air shall play upon the strings.

ÆOLIANS, a name of one of those divisions of the primitive Hellenic people who play no part in positive history. They are said to have dwelt in Thessaly, but the one fact we can predicate of them is, that there were twelve Æolian cities, or states, planted in that part of the western coast of Asia Minor, which went by the name of Æolis. We hear also of an Æolic dialect of the Greek tongue; but we possess no entire work written in it, such small specimens as we have seem to bring it nearer to the Doric than the Attic. Mythologically the Æolians were descended from Æolus the son of Helen.

ÆOLIPYLE and **ÆOLIPILE** (Æωλον-πυλαι, the doors of Æolus; or, more probably, *Æolipila*, the ball of Æolus), a hollow metallic ball, with a curved tube connected with a small orifice. Water or alcohol being introduced in it and boiled, it was used in old times to exemplify the force of steam, or as a blow-pipe when adjusted to a lamp. In 1615 Solomon de Caus noticed in using it the effect of steam in causing water, by the assistance of heat, to mount above its level. The original application of this machine was to discover the cause of the winds.

ÆOLIS, in ancient geography, a province in Asia Minor, originally settled by colonies of Æolian Greeks. In its broadest signification it includes Troas and the shores of the Hellespont as far as the Propontis.

ÆOLUS, the reputed son of Jupiter and Acasta, daughter of Hippotas, god of the winds, resided in the island now called Stromboli. Strabo believes him to have been a real personage, skilled in meteorology and navigation, whence his fabled divinity.

ÆON, a Greek term signifying age. Also used by the Valentinians, an early Christian sect, as a mystical word signifying a virtue or moral attribute, all of which are summed up in the deity.

ÆPINUS, **JOHANNES**, at first a Franciscan friar and afterwards a Protestant theologian, and follower of Luther, born at Brandenburg in 1499, died at Hamburg May 13, 1558. He studied theology at Wittenberg under Luther, was driven out from his native country on account of his opinions, and fled to Hamburg, where he became, in 1529, pastor of the church of St. Peter. He endeavored to turn the heart of Henry VIII. of England toward Protestantism, and was one of the theologians who, in 1587, signed the articles of Smalkalde, drawn up by Luther. He opposed the *ad interim* propounded by Charles V. until a new council should assemble. His proper name was Hoch, but according to the fashion in those days of changing plebeian German names into Latin or Greek equivalents, Johann Hoch became Johannes Æpinus from the Greek *αἶπος*, large. —**FRANZ MARIA ULRICH THEODOR**, born at Rosstock, Germany, Dec. 18, 1724, died at Dorpat, Russia, in 1802, a German savant whose proper

name was also Hoch. He studied medicine, physics, and mathematics. Some treatises which he published caused his appointment as member of the academies of Berlin and St. Petersburg. In 1757 he was made professor of physics at St. Petersburg. In 1759 he published there a Latin treatise on the theory of electricity and magnetism, which Haüy translated into French. The transactions of the learned academies of which he was a member contain many memoirs by him written in Latin, French, and German. He is regarded as the inventor of the condenser and the conductor of the electrical machine. He improved microscopes. Catharine II. honored him greatly, and intrusted to him the charge of instructing the grand-duke Paul.

AERIAL PERSPECTIVE treats of the laws which regulate the apparent distance of bodies, arising from changes in their brightness, due to variations of the light, and of the clearness of the air, combined with the differences in their actual distance.

AERIANS, a semi-Arian sect of the 4th century, named from Aërius, a monk, and holding middle ground between the Arians and the Niceans. The Niceans were Homoiousians, and the high Arians were Heterousians, while the Aërians were Homoiousians. The Aërians in church government denied the distinction between a bishop and a presbyter. They were opposed by a small counter-faction of the Aërians, denominated Aëtians, from one Aëtius, who claimed to have received divine revelations.

AERODYNAMICS, the science which treats of the mechanical effects of the air when put in motion.

AEROE, a Danish island, in the duchy of Schleswig, in the Baltic, situated 10 miles S. of Fünen. It is fertile and well cultivated, about 10 miles long by 5 broad, and sustains a population of 10,200.

AEROLITE (Gr. *αἶρ*, air, and *λίθος*, stone), stones that have fallen from the air. The fact is fully conceded, and it is also established that their composition differs from that of any other substances we are acquainted with. Aërolites have been met with in almost all parts of the world. One in South America is estimated to weigh 80,000 pounds, and another 14,000 pounds, and there is a large one in the Yale college cabinet from the Red river in Arkansas, which weighs 1,635 pounds. Pallas discovered one in Siberia, which weighed 1,600 pounds, and contained embedded crystals of chrysolite. They are described by Livy, Plutarch, and Pliny. The latter speaks of one as large as a wagon, that fell in the Hellespont. By the ancients they were held in great reverence. Iron is the principal ingredient in these stones, varying from 85 to 90 per cent. of their weight; next is nickel, from 6.5 to 10.7 per cent., and then follow a long list of metals, which are nearly all found in every analysis, viz., cobalt, copper, tin, magnesium, aluminum, chromium, potassium, sodium, manganese, and other substances, as sul-

phur, carbon, silica, phosphorus, oxygen, and hydrogen. To the metals named, lead is now to be added, on the authority of Mr. Gleig of England, who has discovered it in small globules in a mass of meteoric iron from Tarapaca, Chili. These substances combine to form a number of mineral compounds, some of which are often met with in the terrestrial rocks, and one is peculiar to aerolites. This compound is named *schreibersite*, and is phosphuret of iron and nickel, expressed probably by the formula $\text{Ni}_2\text{Fe}_2\text{P}$. It occurs in small particles and little flakes, disseminated through the mass, and so closely resembles magnetic iron pyrites, that it may easily be mistaken for it. It is of a yellow or yellowish-white color; hardness=6; specific gravity 7.017. It possesses magnetic properties, and may acquire polarity. Its greater susceptibility to the action of the magnet serves to distinguish it from magnetic iron pyrites. It may be separated, both chemically and mechanically, from the meteoric iron—hydrochloric acid taking up the iron and leaving this insoluble portion. The difficulty of obtaining it by either method perfectly pure causes the analyses to differ somewhat in their results, but its composition is believed by Dr. J. Lawrence Smith to have been determined with sufficient accuracy to justify the formula given above. The following analyses were made by him, with the exception of the last, which was by Mr. Fisher:

	1.	2.	3.
Iron,	57.32	54.04	54.53
Nickel,	25.62	24.43	23.02
Cobalt,	0.38	0.41	0.23
Copper,	traces not estimated.		
Phosphorus,	13.92		14.86
Silica,	1.02		
Alumina,	1.68		
Zinc,	trace.		
Chlorine,	0.18		
	100.66		99.69

These stones are often called meteoric iron, from the metal of which they are principally composed. In appearance they resemble malleable iron; they are black on the outside and grayish white within, and like iron affect the magnetic needle. Their specific gravity varies with the relative proportion of metallic and earthy substances. According to Brande and Thompson, it is from 8.35 to 4.28, but according to Dana ("Mineralogy") it is rarely as low as 6, and a fragment from North Carolina gave 7.818. Van Marum, in the Haarlem Transactions, describes one from the Cape of Good Hope of sp. gr.=7.604, which is about the sp. gr. of malleable iron. A small one which fell in Tennessee in 1855 has the sp. gr. of only 8.2. In whatever part of the world they are found, they present so remarkable a similarity of composition and appearance, that we are compelled to assign to them a common origin. Their composition differing from any thing belonging to the earth (though presenting no new elements), in connection with the circumstances attending their introduction, make it probable that their origin is in some other body than the earth. They appear instantaneously

as meteors, surrounded with a bright halo, and rushing through the air in an oblique direction, toward the earth with immense velocity. They shine with intense splendor, and then explode with a loud noise, sometimes at the height of 80 or 40 miles above the surface. In Normandy, in France, in the year 1803, they appeared in the form of a ball of fire, accompanied with a small rectangular cloud, which did not move, and from which explosions came, the vapor being sent out in all directions on each explosion. This cloud was so high that it appeared at the same instant immediately over the heads of observers a league apart. Stones fell from the cloud with a hissing noise, as if projected from a sling, and were scattered over a tract of country $2\frac{1}{2}$ leagues long by 1 broad. Above 2,000 were collected, the largest weighing $17\frac{1}{2}$ pounds. Fortunately for mankind, the visits of these strangers are seldom in such numbers. They most frequently come singly, and as the unfrequented parts of the earth and those covered with the waters present by far the greatest surface, their fall is for the most part remote from the habitations of man. In their fall they bury themselves in the earth, so great is their velocity, and for some time they continue so hot, that they cannot be handled. As these bodies sometimes illuminate a tract of 100 or 200 miles in extent, it is probable that only a portion of the mass reaches the earth, while the main body keeps on its way through the heavens. Three hypotheses have been proposed to account for the source of aerolites: First, that they are meteors formed in the atmosphere by the aggregation of their particles, as rain and hail are formed. Second, that they belonged to the moon, and were projected from its volcanoes with such force, as to bring them within the sphere of the earth's attraction. This is the theory of Laplace. He calculated that a body projected from the moon with the velocity of 1,771 feet in the first second, would reach our earth in about 2½ days. This velocity is less than 4 times that commonly given to a cannon ball. The third hypothesis is that of Ohladni, the German philosopher, who published his views in a tract at Riga and Leipzig in the year 1794, and still more fully in his great work on this subject published in Vienna in 1819. It is that these bodies are small planets or fragments of planets moving through space, which on entering our atmosphere lose their velocity and fall to the earth. The first hypothesis is a mere supposition, which leaves unexplained the source whence the vapors are derived, as none such have ever been detected in the atmosphere, and also how, if collected, the velocity could be given to the aerolites which they are observed to have. It is not now regarded as at all plausible. Laplace's theory, as proposed by him, is objected to by Olbers and other astronomers, on the ground that the actual velocity of the meteors is greater than they could have received from any forces belonging to the moon. And be-

sides, if all the supplies of these bodies that are known to have fallen upon the earth, and still continue to fall, and of those, moreover, which may be supposed to be projected in other directions than toward the earth, be abstracted from the moon, this satellite must rapidly diminish in material, till it is itself reduced to a moderate-sized meteor, and explodes like the rest. And yet it is by no means improbable, that solid materials may be thus sent forth from the volcanoes of the moon beyond the reach of its attraction; for this sphere, from the inferior gravity of the moon, does not extend to so great a distance from it, as is the case with the earth; and the resistance from gravitation is less for the same reason; and so is that presented by the atmosphere, which in the moon is of extreme rarity. Laplace's theory therefore may be received with more favor with this modification—that such bodies may have been sent forth from the moon, not directly to the earth, but into the space between the planets, and there sometimes they come within the range of attraction of our globe. But after all, this is taking only a limited view of the subject; for there is a striking analogy between these bodies and many others that are floating in space among our planets, and also beyond the limits of our solar system, such as the asteroids between Mars and Jupiter.—“Meteoric Planets,” as Prof. Nichol suggests, they may perhaps with propriety be called. So the zodiacal light may be of similar nature. Such considerations lead us to the original hypothesis of Ohladni. As first proposed by him it is thus stated in general form by Prof. Nichol: “Through the interplanetary spaces, and, it may be, through the interstellar spaces also, vast numbers of small masses of solid matter may be moving in irregular orbits; and these as they approach any planet of powerful gravitation, such as the earth, will be disturbed and may fall toward its surface.” There is a failure in this hypothesis to account for the heat of these bodies as they pass through our atmosphere, and no theory of the compression of the atmosphere caused by their rapid motion has been able to explain it. But Prof. Nichol suggests, “that the recent and apparently established conception regarding heat—viz.: that it must be evolved as an equivalent for any destroyed mechanical effect, wholly removes the difficulty.” For “M. Joule has shown conclusively, that in regard of the greater number of these bodies, the heat equivalent to the mechanical effect due to their original *vis viva*, and destroyed by the resistance of the atmosphere, is such as would melt the body and dissipate it into fragments. In case of smaller velocities, nothing beyond inflammation or white heat might ensue; but far oftener than we imagine, these falling stars are utterly dissipated by the agency now spoken of, and reach the earth in the form of mere meteoric dust.” Aërolites do not appear to be necessary accompaniments of meteors; for these luminous bodies have ap-

peared in our atmosphere in innumerable numbers, particularly in the months of August and November, for a succession of years, with no precipitation of solid bodies to the earth. They are therefore regarded as sometimes of a gaseous, as well as of a solid nature. It is interesting to observe that the phenomenon of aërolites may be detected as having probably occurred in periods anterior to the introduction of man. A mass of meteoric iron has been discovered in an alluvial deposit of the Altai mountains of northern Asia in excavations made for gold. It was met with at the depth of 81 ft. 5 inches, and weighed $17\frac{1}{2}$ pounds. Some doubt, however, may well be entertained as to the age of this formation extending back from the historic epoch, when the fact is recalled to mind of the ancient huts and strange utensils exhumed from the same auriferous formation of the Nancootchie valley in the Cherokee region of Georgia, from almost as great a depth. Very complete accounts of aërolites that have been observed from time to time, are furnished in the “American Journal of Science.” Here are recorded the observations upon this subject of Prof. Charles Upham Shepard and other distinguished scientific men, who have devoted especial attention to the composition of those which have been met with in this country.

AEROMETER (Gr. *anp*, air, and *μετρον*, measure), an instrument invented by Dr. Marshall Hunt, by which the necessary corrections are made in experimenting with gases to ascertain the mean bulk.

AEROSTATION (Gr. *anp*, the air, and *στασις*, standing), **AERONAUTICS** (Gr. *anp* and *ναυς*, a ship), the art of sustaining oneself in the air, and of navigating it. The discovery of hydrogen gas by Cavendish in England the latter part of the last century, and of its extraordinary lightness, which is only about $\frac{1}{15}$ of that of common air, suggested the possibility of using it as a means of lifting heavy bodies into the air, so that this might be navigated as the ocean is by ships. Cavallo the electrician first tried the experiment in 1782, on a small scale, and with little success. The next year, June 5, the brothers Stephen and Joseph de Montgolfier, paper manufacturers at Annonay, near Lyons, sent up a *Montgolfière* or balloon raised by rarefied air. They had tried hydrogen gas without success, as it escaped through the pores of the paper *ballon*, as they called the hydrogen machine. This first successful ascent was with a balloon 110 feet in circumference, and of the capacity of 28,000 French cubic feet, made of coarse linen lined with paper, and weighing 500 lbs. As the air within was heated through the aperture in the bottom, the mass swelled out, and when liberated rapidly rose in the air. As the heat escaped it gradually returned to the surface. In August succeeding, a balloon capable of holding hydrogen gas was sent up from Paris; but held by a rope 100 ft. long, so that it should not escape. This excited the greatest interest among all classes; the

common people even saluted it with respect. The same month another was suffered to go up. This one continued in the air nearly an hour, and descended 5 leagues from Paris. In September the Montgolfiers sent up from Paris a balloon with a car, in which were a sheep, a cock, and a duck. Next ventured M. Pilatre de Rozier, but only the length of a rope made fast to the ground. On Nov. 21, however, he and the Marquis d'Arlandes performed successfully the hazardous and till then untried enterprise of navigating the air in a montgolfière. The machine was 70 ft. high and 46 feet in diameter, of the capacity of 60,000 cubic feet; and able to carry about 1,700 lbs. The ascent was estimated at 8,000 feet above the surface. The horizontal distance travelled was about 5,000 toises in from 20 to 25 minutes; only a third of the fuel taken was consumed. The next ascent was made also from Paris by Messrs. Charles and Robert in a hydrogen balloon, Dec. 1. They alighted in an hour and three-quarters at Nesle, 25 miles from Paris. M. Charles immediately re-ascended alone. The sun had set; but it soon rose to him again, as he said, "I was the only illuminated object, all the rest of nature being plunged in shadow." He descended in safety in 35 minutes, 9 miles from the point he started from. In his expedition the fall of the barometer and thermometer was noticed. The first, sinking to 20.05 inches, indicated an ascent of about 9,700 feet. The thermometer sank to 21° F. In this voyage, the first suspicions were excited of currents of air flowing in different directions at different elevations. The cost of this balloon was about \$2,000, half of which was expended in making the gas. In March, 1784, M. Blanchard ascended from Paris in a balloon, to which were attached wings, with a rudder and a parachute. The former proved entirely useless for controlling the movements of the balloon. In the last, he sent down a dog, which was landed safely. In September of the same year, the Duke de Chartres, afterwards Orleans, went up with Messrs. Robert and Charles and another person. They passed a distance of 185 miles in 5 hours. In Jan. 1785 M. Blanchard and Dr. John Jeffries of Boston, Massachusetts, crossed the Channel from Dover, and landed in the forest of Guineas. These aerial voyages had now become frequent; but they were unattended with any incidents of particular interest or importance. In June, 1785, however, occurred the first fatal disaster. M. Rozier, he who first ventured to trust himself in a balloon, attempted with a young man named Romaine Laine to cross from France over to England in a hydrogen balloon, to which a small montgolfière was attached below, for the purpose of being used as a regulator. The hydrogen, by its expansion in the more rare atmosphere above, pressed down through the tabular neck of the balloon, and reaching the fire of the montgolfière, the whole body of this gas was inflamed, and the voyagers were precipitated upon the rocks near

the sea-shore.—Balloons soon after this began to be regarded as important military machines for making reconnaissances. One was distributed during the French revolution to each of the republican armies. A body of troops was raised in France in 1794, at the command of the directory, for the purpose of reconnoitring the position of the enemy by the aid of balloons. They were under the command of Col. Coutelle, and were first employed at Maubeuge and Charleroi. The balloon was manned by two officers, who communicated, by flags or slips of paper, the results of their observations to the troops beneath. The most favorable height was about 800 or 900 feet, although they sometimes mounted 2,500 feet in the air. The experiment was soon abandoned. The French army in Algiers, in 1830, carried a similar apparatus along with them, but do not seem to have made use of it.—The first ascent for purely scientific objects, was made on Aug. 23, 1804, at 10 o'clock in the morning, by Messrs. Gay Lussac and Biot, under the auspices of the French government. Various philosophical instruments were furnished for experimenting upon the density, temperature, humidity, and electricity of the air at different elevations, and also upon the phenomena of magnetism and galvanism, that might be developed. A flask, too, was prepared for bringing down the air from the highest elevation for analysis. At the height of 6,500 feet, the stratum of clouds they had passed through, presented, as looked down upon, a waving surface resembling a wide plain covered with snow. At 8,600 feet the thermometer had fallen from 61° 7' F. at the surface, to 56° 4'; at 12,800 feet it stood at 51°. The heat of the sun is more directly felt during the day in the rare atmosphere of these upper regions, than when it reaches us through the denser stratum below, or even at similar elevations on the sides of mountains, which are more or less enveloped in the vapors connected with the surface of the earth. The experiments upon electricity indicated its increase with the height attained. Terrestrial magnetism did not appear to diminish. At half past 1 o'clock the aeronauts reached the surface about 50 miles from Paris, freeing themselves from the balloon with much risk and difficulty. On Sept. 15, at 9.40 A. M., Gay Lussac alone ascended again from the garden of the *conservatoire des arts*, to prosecute further researches and at higher elevations. He was particularly desirous to observe the oscillations of the magnetic needle and its dip; the motion of the balloon, however, which continually rotates, first one way, and then slowly back the other, greatly interfered with the correct observation of these delicate experiments. The conclusion arrived at was that there was no sensible difference in the magnetism of the needle, as relates to its polarity, dip, and vibrations, at any elevation man can reach. The temperature varies with the different currents of air passed through as well

as with the elevation. At the highest point of the ascent, which was 22,912 feet above Paris, or 28,040 above the level of the sea, and near 8 o'clock in the afternoon, the thermometer had fallen from 82° F. at the surface to 14°9'. The only conclusion that could be arrived at as to the temperature, is that its gradation is not uniform, but proceeds with augmented rapidity with the increase of elevation. The humidity of the upper strata was less than that of the lower, but the changes in this respect fluctuated from greater to less without uniformity. The air was admitted into the flasks to be brought down for analysis, at the elevation of 21,460 feet, and again at 21,790 ft. At the greatest altitude to which man has ever ascended, more than 4½ miles above the level of the sea, Gay Lussac found the air twice as thin as at the surface. The barometer stood at 12.95 inches. The cold was so excessive as to benumb him, for the air was dull and misty, and a stratum of clouds far above intercepted the rays of the sun. Breathing was difficult, the pulse and respiration were much quickened, and the throat became parched. At 8.45 the balloon reached the surface, and was safely anchored about 16 miles north-west from Rouen. Gay Lussac hastened to Paris, and analyzed himself the air he brought with him. It was found to consist of exactly the same proportions of oxygen and nitrogen as the air from the surface.—In 1806 Carlo Brioschi, astronomer royal at Naples, in company with Andreani, the first Italian *aéronaut*, attempted to rise from Naples to a greater height than Gay Lussac reached. By the expansion of the gas in the rare atmosphere their balloon burst; but its fragments checked the velocity of the descent, and they fell to the surface with no immediate material injury. Brioschi, however, contracted a disease, from which he suffered till his death in 1833. One of the most distinguished *aéronauts* of this period was M. Blanchard, who was the first with Dr. Jeffries to cross the English Channel. He died in 1809, having made more than 66 ascents; one of which was in New York city in 1796. Madame Blanchard sometimes accompanied him, and after his death she continued to make these voyages. In 1819, having ascended from Tivoli, in Paris, and taken up some fireworks, her balloon was inflamed by these, and she was precipitated to the earth and dashed to pieces in the Rue de Provence.—In the year 1836 a very interesting *aérial voyage* was made by Messrs. Holland, Mason, and Green, from London. The balloon was of unusually large dimensions, being about 60 ft. high and 50 ft. diameter, containing 85,000 cubic ft. It was furnished with provisions for a fortnight, instruments of great variety, clothing in abundance, and apparatus for warming coffee and provisions by the heat developed in slaking lime. They set out at 1.30 P.M. on Nov. 7, and were wafted by a moderate breeze toward the south-east. In the evening they crossed over the channel near Dover, and during the night passed over many

villages and towns of France. The lighted streets of these, as they sailed over them, presented the most beautiful spectacle. But Liege, with the numberless brilliant fires of its iron works, and the murmur of its busy population, surpassed all other objects in beauty and interest. Intense darkness soon succeeded, and the voyagers lost all knowledge of the course they were pursuing, or the rate at which they were carried along. A long rope they trailed along sometimes reaching the surface warned them to throw out ballast and gain a greater elevation. At 8.30 A.M. in the midst of impenetrable darkness and profound stillness, a noise like an explosion came from the balloon, followed by a second and third report, and accompanied with a great rustling of the silk and shaking of the car. It proved to be the effect consequent on the collapsing of the balloon, when the air within became condensed into less space, and of its swelling out by the expansion of the air as the balloon rose into a rarer atmosphere. At 5.10 in the morning they were at an elevation of 12,000 feet. The view spread over an area of 800 miles diameter. At 6.15 the sun rose to them. It set as they descended; and rose and set again, and at last appeared the third time ascending the horizon. On approaching the surface in the morning they were utterly ignorant whether they had arrived at the plains of Poland or the steppes of Russia. The locality in which, after many attempts, they succeeded in finding a resting-place, proved to be in the Duchy of Nassau, about 2 leagues from the town of Weilburg, a distance of 500 miles from London, which they accomplished in 18 hours. This is the longest *aérial voyage* on record.—One of the most interesting meteorological phenomena noticed by the *aéronauts* is the occurrence of the rain clouds in strata, which are separated by a clear space of some thousand feet, it may be, in thickness. Any layer of clouds, from which the rain falls, is sure to be succeeded by a stratum of clear blue sky, and over this is found another cloudy belt. If rain fall from this too, the same succession of blue sky and clouds is looked for above it. These hazardous enterprises have so far resulted in no practical good, nor do they seem likely to lead to any useful object, except it be for military reconnoitring. Balloons must be wafted along by the currents of air, in which they float, perfectly independent of any power that can be applied to them from within. Enveloped in clouds, the *aéronaut* may be swept along with the swiftness of a tornado, with nothing to indicate to him, that he is not in the quiet of a calm; and, of course, with no means of knowing the direction of his progress, when he cannot be aware of any progress at all. As the course of the winds, at different elevations, becomes more fully understood, balloons may to some extent be used for passing from one part of the country to another; but this can be only along the lines of their currents, and in approaching the surface, the voyager must be exposed to its fluctuating breezes with no abil-

ity to select the place for his landing. Man has yet to discover some new principles that shall give him a partial control over the elements, or else thoroughly comprehend their operations, before he can apply to any important purpose the power he possesses of rising into the air.

AERTGEN, a painter of distinction, born at Leyden, in Holland, 1498. He was originally a wool-carder, but obtained such eminence as an artist, that persons came from distant cities, to see his productions. He made it a practice never to work on Mondays, but to devote that day to the worship of Bacchus and Silenus. One of these days, as he was strolling about the town in a drunken mood, playing on the flute, he fell into a dyke and was drowned, 1564.

AERTSEN, PIETER, surnamed Longo, from his stature, was born at Amsterdam, 1519, and died there 1584. His father was a stocking-maker, and he was also brought up to that craft. He early showed an irrepressible taste for drawing and painting, and his mother, like Ben Jonson's in a like case, prevailed upon his father to allow him to follow the bent of his natural genius. He did not disappoint her hopes, and rose to eminence as a painter. One of his productions represented the crucifixion, with the executioner in the act of breaking the knees of the two crucified thieves. This picture was torn to pieces by a mob, in 1566, and Aertsen expressed himself indignantly at the outrage. The sympathizers were so enraged at the painter's defence of himself and the executioner of scripture, that they were with difficulty prevented from murdering him.

ÆSCHINES. I. An Athenian orator and rival of Demosthenes, born at Athens, B. C. 389, died at Samos, B. C. 317. He was the son of Atrometus and Glaucothea. Demosthenes says Atrometus was a freedman and Glaucothea a prostitute. Æschines, on the contrary, says his father was a true-born Athenian. It is certain that the father of Æschines was a schoolmaster; Demosthenes upbraided him with this fact, as though it were a low and sordid occupation. "While a boy," says Demosthenes, "thou wast brought up in great poverty, attending thy father in the school, making ink, cleaning the benches, and sweeping the room, occupations such as befit a slave and not a free-born youth." He was afterward clerk to a magistrate, and thus obtained some insight into the laws of his country. Having a fine voice and prepossessing figure, he tried his fortune on the stage, and finally appeared as an orator on the public arena. At that period of the Athenian government, to be a leading orator was to be a leading statesman. We hear of him as public clerk for two years, and a satellite of the orators Aristophan and Eubulus. In 347 B. C. he was sent, along with Demosthenes, as one of the ten ambassadors to negotiate a peace with Philip of Macedon. From this time forth he appears as a favorer of the Macedonian alliance, and an opponent of the patriotic party of Athens, which

was headed by Demosthenes. He formed one of the embassy who went to receive Philip's oath to the treaty. Timarchus and Demosthenes accused him on his return of malversation in his embassy. He evaded the danger by a counter-prosecution against Timarchus, on account of his bad moral character, which succeeded. Shortly after the battle of Chæronea, B. C. 338, Otesiphon, an Athenian, proposed that Demosthenes should receive from the state a golden crown. Æschines indicted Otesiphon for bringing forward an illegal and inappropriate resolution. The cause was not tried until 330 B. C., after the death of Philip, and when Alexander was in Asia. Otesiphon was acquitted, and as Æschines had not gained one-fifth of the aggregate votes cast, he was liable to pay the penalty inflicted by the Athenian law on him who brought forward a factious resolution. Being unable to pay this penalty, he retired to the island of Rhodes, where he taught elocution for a livelihood, and became the founder of the Rhodian school of oratory. Three speeches of his are extant. The first is on malversation in his embassy, the second is against Timarchus, and the third against Otesiphon. His narrative and descriptive power is great, and his extant speeches are freer from personal abuse than those of his great rival. Demosthenes himself acknowledges, unwillingly, the graces of his manner in the tribune, and the agreeable quality and volume of his voice. II. An Athenian philosopher, a follower of Socrates, and the son of Charinus, a sausage-maker. Socrates used to say that the sausage-maker's son was the only man who knew how to honor him. Poverty obliged him to go to the court of Dionysius, the Syracusan tyrant. Plato, who was in the ascendant there at that time, treated his poor brother with much contempt, but Aristippus received him well, and gave him a large reward for his dialogues. He taught philosophy for a living at Athens. Phrynicius mentions him favorably as a model of pure Attic style. He wrote orations for the forum for hire. Several dialogues on ethical subjects have been ascribed to him, but their genuineness has been justly called in question by critical scholars.

ÆSCHYLUS, the eldest of the great Attic tragedians, the son of Euphorion. He was of a noble family of the class of the Eupatridæ, and was born at Eleusis, a borough of Attica, in the 4th year of the 68d Olympiad, 525 B. C. It is probable that he traced his origin to Codrus, the last king of Athens; for among the life-archons, who succeeded the kings, was an Æschylus, in whose reign the Olympiads commenced. It is believed that his father was connected with the worship of Demeter, whom the Latins called Ceres; and he was probably, himself, accustomed from his youth to the splendid and solemn spectacles of the Eleusinian mysteries, into which he was afterward initiated. A portion of these he seems to have described in a strange fragment from his drama of the

Edoni, the remainder being lost, and the secrets of them he was accused for divulging in his fearful tragedy of the Eumenides. Pausanias relates of him, that Dionysus, or Bacchus, the god of whose worship tragic and dithyrambic odes and spectacles formed a part, appeared to him in a vision—as he himself asserted—when he had fallen asleep in the fields one day, when he should have been watching the vines, and commanded him to write tragedy. Such imaginations were common to the poetical and sensuous temperament of the superstitious and ever-dreaming Greeks, and pre-suppose only the strong tendency of a mind, imbued with genius of a peculiar order, brooding over its own secret and half-developed instincts, until it creates, out of its own mystical yearnings, the bid-dings of a god, commanding it to follow out its natural vocation. In his 25th year, he made his first attempt as a tragic poet, in the 70th Olympiad, B. C. 499; but the next shape in which we find him mentioned, is that of a warrior, not a poet; when, with his two brothers, Cynægirus and Ameinias, he received public honors for distinguished valor in that famous field, where all were valorous, of deathless Marathon. Six years after that battle, he gained his first tragic victory, and 4 years afterward, again fought at Salamis, where his brother Ameinias received the prize for the greatest courage, being the trierarch who sank the first Phœnician ship, as the poet himself has related in his *Persæ*, although modestly refraining from mention of this hero's name. He again fought at Platæa, where the allied Greeks, led by Pausanias, utterly destroyed the enormous Persian host, under the command of Mardonius, and put an end to the Asiatic invasions of the sacred soil of Hellas. Eight years after this he gained the prize for a tetralogy, or series of 4 dramas, presented at a single representation, the *Persæ*, the *Phineus*, the *Glauco Potniensis*, and the *Prometheus Ignifer*—the last a satiric drama. Of the latter part of his life much is veiled in uncertainty. He was, it appears, defeated by Simonides, in an elegiac contest, for the prize offered for the best elegy to the honor of those who fell at Marathon; but, for many years, he continued the unapproachable lord of the tragic lyre, having composed, it is said, 70 dramas, 5 of which were satiric, the rest tragedies of the loftiest tone; and gained 13 tragic prizes, before he was at length defeated by Sophocles; who brought a higher degree of finish, greater pathos, and a purer Attic style, to a younger audience, who had outlived the taste for the lofty tone of the older generation, in the 78th Olympiad, B. C. 468. Soon after this, whether in disgust at this loss of his poetic laurels, or at a trial to which he is said to have been subjected on an accusation of impiety for the disclosure of the Eleusinian mysteries, as related above, he retired to Sicily, where he was hospitably received by the puissant and liberal monarch, Hiero, in whose honor he composed a drama styled *Ætina*—a woman of a city lately founded

by his royal patron; and where he died at Gela, in the 69th year of his age, Olymp. 81, B. C. 456. The real circumstances of his accusation and trial are unknown; Clemens Alexandrinus stating that he was tried by the court of the Areopagus and acquitted; while Ælian relates that he would have been stoned to death by the Athenians, had not his brother Cynægirus awakened the sympathies of his would-be executioners, by baring his mutilated arm, from which the hand had been hewn by a Persian scimitar, as he was struggling to prevent the launch of a galley from the beach at Marathon. It is, moreover, doubtful whether he ever revisited his native country, between the period of his expatriation and that of his foreign death, although many of his pieces, among others the celebrated *Oresteian* trilogy, composed of the *Agamemnon*, the *Choëphoroi*, and the *Eumenides*, which gained the tragic prize, B. C. 458, were performed during this period. The latter fact seems to disprove the whole story of the accusation of impiety, as it certainly disposes of its connection with his removal to Sicily, as the cause of his taking umbrage toward Athens. Most doubtful of all is the received account of his death, which was occasioned, says the legend, by an eagle flying overhead with a tortoise in his claws, and dropping the reptile on the bald head of the philosopher which he mistook for a stone, intending to break the shell of his amphibious prey, but breaking, instead, the skull of the poet. That the eagle, proverbially the farthest and keenest-sighted of created things, should mistake a man's head for a stone, is absurd beyond the necessity of comment. Professor Anthon judges plausibly, that the legend is a "post-mortem" invention to meet a supposed prophecy, made during his life, that he should meet his death from on high. Æschylus was a great improver of the Attic tragedy; in fact, it is he who gave to it, first, the tragic form, by introducing a second performer, with dialogue, emotion, and action. He also abridged the length of the dithyrambic odes; caused a regular stage to be erected; and, first, produced his dramas with appropriate scenery, and clothed his heroes in befitting costumes. Of his 70 dramas but 7 have come down to us entire,—the *Seven against Thebes*, the *Suppliants*, the *Persians*, the *Prometheus Fettered*, the *Agamemnon*, the *Choëphoroi*, and the *Eumenides*; with but a few fragments of the others, which are alone left to us, with their names, to show us how much we have to regret in their loss.—Æschylus is, undoubtedly, the grandest, the stateliest, and the most solemn of the Attic tragedians; and his style, though difficult and at times rugged, is magnificently sonorous with its many-syllabled compounds, and no less terribly expressive.—His dark and solemn creed is that of a blind, over-ruling, ever-present, inevitable necessity, against which it is vain to contend, from which it is hopeless to escape, yet which it is alike the duty and the glory of the great, good man to resist, to the

end, undaunted—of ancestral guilt continually reproduced and punished by the successive guilt of generation after generation, of hapless kindred criminals, who would not be criminals, could they avoid it, but are goaded on to the commission of ever new atrocities by the hereditary curse of the doomed race. Such are the fearful legends of the Theban Labdacidae, and the Mycenaean Atreidae, predestined murderers, adulterers, and parricides, vainly struggling against the fatal doom, inextricably involved in the meshes of the dark net of necessity. It is objected to Æschylus, that he deals with horrors only; that his lyre has but one chord of dark and disastrous terror—that he is all iron, and has no key to attune the tenderer strings of human sympathies, to unlock the fount of pity, and

Open the sacred source of sympathetic tears.

But they who have thus judged him, have either not deeply studied, or have strangely misunderstood, his sublimer passages. It is doubtful whether there is to be found, in the whole range of Greek letters, deeper pathos than that of the divine woe of the beneficent demigod, Prometheus, crucified on his Scythian crags, for his love to mortals—strange heathen antitype of the meek Christian Saviour—than that of the choruses in the Agamemnon, descriptive of the disconsolate sorrow of Menelaus deserted by his faithless Helen; and of the sacrifice, at the father's bidding, of the devoted Iphigenia. Less polished, he is grander than Sophocles; and with the effeminate, sophistical, and irreligious Euripides, he can no more be compared, than a son of Anak in his panoply of brass with a *petit maître* of Louis XV. of France. The tragedies of Æschylus have been rendered into English verse by several well-known writers; the principal translations being that of all his dramas by Dean Potter, which is probably the best known, although very loose and unilateral, often incorrect, and of no high poetic merit—a highly poetical version of the Prometheus, for it is so free that it can hardly be called a translation, by Mrs. Elizabeth Barrett Browning, possessing great merit of language and spirit, but deficient, as might be expected of a lady's Greek, in correct scholarship—a literal translation of the Prometheus and Agamemnon, by Mr. H. W. Herbert, and a singularly fine, almost word-for-word rendering of that most difficult drama, the Eumenides, by an anonymous writer, in "Blackwood's Magazine." The popularity of Æschylus has doubtless been affected by the difficulty of his style, and by its being so thoroughly idiomatic that it is barely possible to convey his beauties at all adequately in a foreign language; which drawbacks have confined his admirers to a few thorough Grecians, and will probably always prevent his becoming a general favorite; although, by those best capable of judging, he will ever be held one of the highest among those who have trodden the steepest and most difficult paths of the Par-

nassian hill.—The most esteemed editions of Æschylus are by Schütz, Hal. Sax. 1808-21; Dindorf, Lips. 1827. and Oxon. 1832; and Scholefield, Camb. 1830. Blomfield's edition is excellent as far as it is completed, but it contains only 5 of the 7 tragedies that are still extant.

ÆSCULAPIUS (Ασκληπιος), the god of medicine and the patron of the medical profession. There are many conflicting mythological accounts of his descent. In the Homeric poems, he is only spoken of as the "blameless physician," whose sons were serving in the medical staff of the Greek army before the walls of Troy. The most common story makes him the son of Apollo. He went about healing diseases and raising the dead to life. Pluto, god of Hades, took alarm at the latter exploit, and complained to Zeus that Æsculapius was invading his bailiwick. He acknowledged the justice of the complaint, and struck Æsculapius dead with a flash of lightning. The most renowned seat of Æsculapius' worship in Greece was Epidaurus, an Argolic city. He had a splendid temple there, with a statue half as large as that of Zeus Olympius at Athens. The cock was commonly sacrificed to him, but the serpent was his favorite type. At Epidaurus a peculiar breed of holy serpents were kept about the temple, and into them the god was supposed to insinuate himself. When a city was afflicted with a pestilence, it used to send to Epidaurus for one of these Æsculapian snakes, out of the sale of which the Epidaurian priests reaped large profits. The presence of the god in the pest-stricken city in the form of a yellowish-brown snake, was held to be propitious, and likely to allay the rage of the pest. About 400 B. C. the Romans, under the presence of calamity, sent a solemn embassy to request the presence of one of these representatives of Æsculapius. On a later occasion of the same nature (B. C. 298) the worship of Æsculapius was introduced into Rome. There were also famous temples erected in his honor at Cos, Cnidos, and Rhodes. In all these temples were tablets erected in commemoration of wonderful cures, on which were recorded the name and genealogy of the patient, his disease, and the mode of recovery. Pillars, commemorative of munificent benefactions bestowed by rich men who had been cured, were also to be seen there. The priests of these temples formed the *yeos* or race of Asclepiadae, or children of Æsculapius. They were the only regular practitioners of antiquity. Formerly the priesthood of Æsculapius was hereditary, but in later times the priests took pupils and initiated them into the mysteries of medicine, and these latter were regarded as regularly trained physicians.

ÆSOP. I. The fabulist, born about the year 620 B. C. was convicted of the crime of sacrilege while ambassador of Croesus at Delphi, and thrown from a precipice, about 564 B. C. His birthplace is not certainly known. While young he was brought to Athens and sold as a slave, but finally received his freedom from his master

Yadmon. So high was his reputation as a writer that Cræsus, king of Lydia, invited him to reside at his court. He visited Athens during the reign of Pisistratus, where he wrote the fable of Jupiter and the frogs. His works have perished. The current stories concerning him are taken from a life written by Maximus Planudes, a monk of the 14th century, and prefixed to a volume of fables ascribed to his pen. In this work, he is described as hideously ugly and misshapen, which statement is doubtless entirely false, as no personal defects of the kind are mentioned by any classical author. It is rendered still more improbable by the circumstance that his statue was executed for the city of Athens by the famous sculptor, Lysippus. II. CLODIUS, a famous tragic actor at Rome, about A. U. C. 670. He was the contemporary of Roscius, and with him the instructor of Cicero in oratory. He was accustomed to identify himself so completely with his part, that once while enacting the character of Atreus, and plotting how to avenge himself on Thyestes, he struck dead with his truncheon one of the stage attendants. He lived in the most luxurious manner, and once served up a dish of singing birds that cost \$4,000, at a banquet.

ÆSTHETICS, the science of the beautiful in nature and art. This term has been introduced into the nomenclature of philosophy during the present century, and strictly signifies "that which relates to sensible impressions," from *αισθητικός* perceptible to the senses, which is from *αισθάνομαι*, to feel or perceive by the senses. Adopting the threefold division of human nature, as recognized by the soundest psychologists, into the capacities of knowing, acting, and feeling, or the intellect, will, and sensibility, to which correspond respectively the ideas of the true, the good, and the beautiful, the science of æsthetics bears the same relation to sensibility, that logic does to intellect, and ethics to will. Logic (in the most general sense of the term) determines the laws of thinking; ethics the laws of acting; and æsthetics the laws of feeling. Truth is the ultimate aim of thought; good the ultimate aim of action; and beauty the ultimate aim of sensibility. The science of æsthetics is still in an unsettled condition, and in many respects, is subject to peculiar difficulties, owing to the diversity of tastes in nations and individuals, and to the comparative freedom of the domain of art. But although the laws of taste may seem to be less definite than those of logic and ethics, it cannot be doubted that they have the same foundation in human nature, and are equally capable of being reduced to a scientific system. Thus far, however, little unity on the principles of beauty and art has been attained by philosophers. There are only two topics in which they seem not to contradict each other, viz.: that there is nothing beautiful without a beautiful form, and that this beautiful form, in order to be really beautiful or a work of art, must betray ideas, have an ideal background, be the

vehicle for thoughts, satisfy all or nearly all the faculties of the human mind. There are two different ways of treating and developing æsthetics as a science: the method *a priori*, which strives to sift the æsthetic notions proper to the mind, and to build out of them an abstract system to which it invites the artists to conform their creations of art; and the method *a posteriori*, which takes its starting-point from the acknowledged works of art, seeking for what in them constitutes their pleasing effect, and combining its results under practical rules in conformity with existing works of art. It is evident that neither of these methods, followed out exclusively, can attain to its aim, viz., to establish a science of the beautiful; not the former, because it is liable to lose sight of the infinite freedom which reigns in the artistic kingdoms; nor the latter, because it is apt to neglect the ideal elements in art. In the former direction the series of æsthetic philosophers, beginning with Pythagoras and Plato, and continuing with Baumgarten, Kant, Schelling, Schiller, Hegel and his followers, have speculated; in the latter direction Aristotle took the lead, and Heinse, Lessing, Winckelmann, Bayle, Rousseau, and the French, English, and Italian æsthetic writers, have followed in his footsteps. Pythagoras, as a mathematical genius, tried to find the beautiful and its form in numerical proportions, but we know too little of his ideas to dwell on their merits. Socrates, as Plato understood him, identified the beautiful and the good, calling them by one compound name, "Kalokagathon," the beautiful and good, which he defines as the measure or the unity of the eternal ideas and their existing real form; but with him, art has no claim to the independent existence which belongs to politics and morals, or to a separate treatment as a science. Baumgarten, in Germany, was the first to vindicate the independent dignity of the beautiful, by showing that there is, in the human mind, a faculty for its perception and appreciation founded in the senses, and centring in an inferior kind of intellect (*cognitio sensitiva*), which may be guided, but cannot be set aside by reason. Kant accepted and amended this position, by granting that it is not an inferior intellect which is affected by the perception of the beautiful, but the highest of all human faculties, the power of reasoning and judging. The beautiful is for him whatever possesses a harmony and aim in itself, and is not degraded into a means for merely foreign ends; as such it exists on its own account, and is the opposite of the useful. Schiller was the first to give a strict analysis of what the beautiful is in itself, independent of what it is for our perception and taste, and of the conditions of its pleasing impression on the mind. Dividing the beautiful into two kinds, the "naïve" and the "sentimental," he finds the charm of the former in its naturalness, freedom from pretension, and self-enjoyment; that of the latter in its longing to return to nature and its simplicity. Schelling, and after him Solger,

indicate the beautiful as the highest degree of identity of the ideal and real, in which both are so intimately united that the former is the soul, the latter the body, or the infinite appearing under finite forms entirely adequate to express its perfections. Hegel (*Æsthetik*, 3 vols., Berlin, 1842-43,) and his two most remarkable pupils in that direction, V. Vischer (*Æsthetik*, 2 vols., Rentl., 1846-48), and A. Ruge (*Neue Vorlesule der Æsthetik*, Halle, 1887), have developed Schelling's ideas into a more complete and genial system, and carried the knowledge of the nature of the beautiful a great step in advance, showing that it is the kingdom in which the absolute idea and its finite manifestations realize their infinite freedom over matter. In its lowest stage, in the beauty of nature and history, the idea realizes itself unconsciously, and therefore imperfectly. In their sphere it is only foreshadowed, appears interwoven with the accidental and unessential. In the human mind it exists with full freedom, striving to domesticate, and to idealize matter by giving it adequate form, and making it express the infinite. In architecture, sculpture, and painting, the mind labors still under the fetters of matter; in poetry it calminates, subduing matter, and reducing it to the inferior dignity of a means of expressing the idea. From this short statement of speculative ideas on beauty, it is sufficiently evident that we may thus reach certain general and abstract truths as to the nature of beauty, but approach no nearer to a clear understanding or better enjoyment of the masterpieces of art themselves. Aristotle applies his "categories" to the science of beauty and art, showing how all genuine productions of art embody some indispensable laws and rules which we must learn to appreciate correctly, and to reproduce beautiful artistic works on their model. He does this most completely in his "Poetics," where it was most natural and easy, establishing the necessity of unity in time, space, and plan or object, and teaching the right use of the questions: who? what? where? by what means? why? whereby? when? But he does not derive his rules from the nature and wants of the human mind; and thus for over a century, they led the French artistic world under Louis XIV. and his successor, into slavery to tyrannic dogmas. Winckelmann, in his history of art, does for sculpture, painting, and architecture, what Aristotle had done for poetry. Wm. Heinse, whose merit in defining the limits of every art, and showing the power, effects, and particular means of each as distinguished from the others, is perhaps still not sufficiently appreciated, analyzes the single beauties of several masterpieces of every art in the most minute detail. Lessing, particularly in his "Laokoon," does the same under the clear light of an unsurpassed critical genius, and Goethe and J. P. Fr. Richter give innumerable happy hints on the beautiful under all its forms. Rousseau enters with the same spirit into the kingdom of music, and tries to trace back to its ultimate source the signifi-

cance of its means of expression. Among the British æsthetical writers, Hutcheson and Burke have inquired into the origin of our ideas of beauty with some ingenuity but with little depth, while Dugald Stewart, Alison, Jeffrey, and Paine Knight, have offered some superficial suggestions, but with no pretension to accurate philosophical analysis. There is still one element in the science of æsthetics which has been too little noticed, viz., the theory of proportions. Pythagoras with his ideas has not found a successor, showing wherein the beauty of form in the very last respect is founded, analyzing all different forms of artistic expression, and exposing the particular working of each on the mind according to its psychological construction. What Hauptmann (*Harmonik und Metrik*, Leips., 1850) has attempted in this direction for music, is not sufficient, and should be applied to every branch of art. It is thus seen that the science of æsthetics is still in its infancy. The necessary materials are wanting for speculative construction and critical arrangement. We do not yet know what the "line of beauty" is in architecture, sculpture, and painting, nor by what features of similarity it works on the sympathies of our mind; we do not yet know wherein the charms of a given melody consist, nor how it awakens such feelings within our soul; nor what in poetry gives to each rhythm, figure of speech, image, and sound of the language its enchanting power. In this respect, poetry and music have thus far attained the highest degree of progress. In order to complete the lacking materials we must have a better psychology on a mathematical basis, like that of Herbart, but founded at the same time on a rich treasure of appropriate experimental observations; we must have a complete analysis of artistic forms into the most refined details and in every branch of art, and last, but not least, a systematic history of art from its earliest and simplest stages. It may take a long time for the performance of these tasks to prepare the materials for the construction of the science of æsthetics.—There is still no complete and satisfactory work on æsthetics; but beside those which have been already referred to, the student may consult the following with more or less advantage: Weiss's *System der Æsthetik*, 2 vols., Leips., 1830; Jouffroy's *Cours d'æsthetique*, Paris, 1842; Cousin's *Le vrai, le beau, et le bon*; and John Ruskin's works generally.

ÆSTUARY, a term sometimes used in geographical description, and generally in the sense of a wide opening at the mouth of a river, where the tide rushes in and out with great violence. It is more familiar to the British than to the American vocabulary. The name is derived from the Latin word *æstus*, which sometimes means a rapid flood of sea water on the land.

ÆTHER (*ἄether*), a subtle medium much rarer and finer than air, which the ancients believed to pervade space above and beyond the region of the heavy earthy air. The gods above breathed the æther as they lived on am-

brosia and nectar, things purer and sweeter than ordinary terrestrial things. It was sometimes personified. Descartes and Sir Isaac Newton both believed in the existence of such spiritual media pervading space.

ÆTHRIOSCOPE (Gr. *αἰθριος*, clear, and *σκοπεω*, to view), an instrument invented by Sir John Leslie for measuring the relative degrees of cold produced by the pulsations from a clear sky. In a metallic cup standing upon a tall, hollow pedestal, a differential thermometer is placed in such a manner that one of its bulbs is in one focus of the spheroid, formed by the cavity of the cup. The other focus is in the plane of the orifice of the cup. The interior of the cup is highly polished, and is kept covered by a plate of metal, and only opened when an observation is to be made. As the second bulb is out of the focus, it is not affected by the pulsations, the action of which is concentrated upon the first bulb. The contraction of the air in this bulb by its sudden exposure to a clear sky, causes the liquid in the stem to rise.

AETION, a famous Greek painter, supposed to have lived in the first half of the second century of our era. He was distinguished for the beauty of his coloring, and esteemed the first painter of his time. Lucian gives a description of a very fine painting by him, representing the nuptials of Alexander and Roxana, which was displayed at the Olympic games.

AETIUS, a theologian of the fourth century, who in the Arian controversy was not content with the semi-Arian victory under Constantius, but urged the doctrine of the high-Arians, or Anomæans. In connection with Eunomius, he gave logical form and precision to the tenets of Arius.

AETIUS, a celebrated Roman general of the western empire, in the latter part of the 4th and the beginning of the 5th century. He was the son of Gaudentius, a Scythian or Goth, in the service of the empire, who had risen from the condition of a menial to the highest rank in the cavalry. His mother was a noble and wealthy Italian lady, and, at the time of his birth, his father was a man of prætorian dignity. He was afterwards slain by a mutiny of his soldiers in Gaul. Aëtius was born at Dorostolus, in Moesia, and was educated in the imperial body-guard of Honorius. Much of his youth was passed at the court of Rhuas, king of the Huns, to whom he had been delivered over as a hostage, and with whom he acquired great influence, so that he was his friend and protector, as afterward he was his son's rival in the field of arms. After his return from the camp or capital of the Hunnish monarch he was made a count of the empire, on his marriage with the daughter of Carpileo, and had the superintendence of the domestics and palaces of Joannes, who, on the death of Honorius, aimed treasonably at the purple, and set up his rebel standard against the empress mother, Placidia, and her son Valentinian III., heir to the empire.

Aëtius is described at this time, by a contemporary writer, Renatus Frigeridus, cited by Gregory of Tours, in the following terms: "He was a man of middle size, of manly habits, well made, neither slight nor heavy, active in mind and limbs, a good horseman, a good archer and poleman, of consummate military skill, and equally adroit in the conduct of civil affairs; neither avaricious nor covetous, endowed with great mental accomplishments, and never swerving from his purpose at the instigation of bad advisers; very patient of injuries, desirous at all times of laborious occupation, regardless of danger, bearing without inconvenience hunger, thirst, and watchfulness; to whom it is known to have been foretold in his early youth, that he was destined to rise to great authority." To all which might have been added, says the last historian of Attila, the late dean of Manchester, that he was a consummate villain, a treacherous subject, a false Christian, and a double-dealer in every action of his life. On the rebellious rising of his patron, Joannes, against the rightful emperor, Aëtius was despatched to the Huns, with a great weight of gold, to seek their succor; and in the year 425 A. D. he conducted 60,000 of these barbarians into Italy, under the guidance, it is said, of Attila, then in his 25th year. But at this juncture Joannes being killed, the double-traitor made his peace with the empress mother Placidia and Valentinian, and extorted from them the chief command of the army of Gaul, as the condition of his procuring the peaceful retreat of the barbarians, which he effected with a degree of facility that proves both the extent of his understanding with their leaders and his influence over their minds. In his province, he signally displayed his great military skill and abilities, delivering Aries from the Visigoths, recovering from Clodian, king of the Franks, the parts of Gaul bordering on the Rhine, overpowering the Juthingi in Bavaria, bringing to an end the Vindelician war, and in the following spring crushing the confederated forces of the Burgundians, Huns, Herulians, Franks, Sauromatians, Salians, and Gelons, in one terrible encounter. In the year 432, his rival, Boniface, who had been urged to treason and then betrayed, by himself, returning from Africa to Rome and obtaining the dignity of master of the horse, a conflict ensued between them, of the wounds received in which Boniface soon afterward died. But Aëtius fearing for his life, which was threatened by his late rival's adherents, fled into Pannonia, and again obtaining Hunnish succors, led a second army of those terrible barbarians into Italy, threatened the throne of Valentinian, and, although the feeble emperor called in the aid of the Visigoths, forced the empress and her son, without an engagement, to submit to his terms, and returned, as before, though with accumulated honors, to take command of the army of Gaul. In this dignity he once more displayed his great genius as a general, routing the Burgundians with exceeding

slaughter, and forcing their king to throw himself on his mercy. In the mean time, great events were in progress. Rhuas, king of the Huns, died, and was succeeded by Attila and his brother Bleda, the latter of whom being speedily murdered, the former assumed the sole dominion, and was speedily involved in hostilities with both the Roman empires. For several years his arms were directed chiefly against the eastern empire, but in the year 451 A. D. he set in motion his vast army of a thousand nations, debouched from the defiles of the Hercynian forest, crossed the Rhine on rafts, and fell like a torrent of steel and fire on the rich plains of Gaul. Here for a time all fell before him, till when he was in the very act of storming the walls of Orleans, while his Huns were mounting the breaches, the spears of Ætius and Theodorio the Goth appeared on the horizon, and, amid cries of "the aid of God," from the beleaguered citizens, the siege was raised, and the Hunnish hordes forced to retreat foiled and discomfited. Some days later, a tremendous pitched battle was fought on the field of Chalons, in which three hundred thousand men fell on both sides. The Huns were so completely defeated, that Attila had prepared a funeral pile and contemplated burning himself alive, with his treasures, his women, and his baggage-wagons, had the Romans renewed the battle on the following day. But Theodorio lay dead beneath the Hunnish horse hoofs, and Ætius, a heathen in his heart, stayed his hand from the slaughter, and suffered the Huns to escape, to work further ruin to Christianity and Rome. After this, he purposely remained inactive during the remainder of the war, took no measures to oppose the invasion of Italy, and even advised Valentinian to evacuate that country and take refuge in Gaul, which would have left himself master of Rome, where by his great abilities, in which he confidently trusted, he would speedily have rid himself of the Huns, and assumed the imperial purple. After the retirement of Attila from his unachieved conquest to the wilds of Pannonia, he was murdered in his own palace, either by his mistress or his sword-bearer, as it is positively asserted by Marcellinus, at the instigation of Ætius, who had always his emissaries, in the shape of confidential Greek secretaries, about the person of the royal Hun, who had never ceased to intrigue with him, even through the heat of the war, and who, on the very morrow of the carnage of Chalons, was known to have tampered severally with Meroveus, Torismond, and Attila. In the end, he fell, not undeservedly or to be pitied, by a crime and a treason base as his own, stabbed by Valentinian with his own hand, during a friendly interview. Yet the circumstances of this slaughter are not clearly known, although a coin, which has been preserved, bearing the inscription Ætius Imperator Cæsar, proves that he had assumed the imperial purple, and actually declared himself emperor, before he was killed by Valentinian. Nominally a Roman,

he invariably betrayed Rome to the barbarians, except when it was for his own interest to defend her, and then the ease with which he conquered them, showed what he might have done had he been honest. Nominally a Christian, he brought up one of his sons, Carpileo, in a heathen court, a heathen, and destined him to wear the crown of a heathen nation, while the other, Gaudentius, he proposed to invest, after himself, with the treasonably-acquired purple of the western empire. Such was the man whom Gibbon, dazzled by the splendor of his talents, or perhaps enamored of his hatred to Christianity, extols as a patriot, a hero, and almost a martyr. His abilities were of the first order, his powers, both strategical and political, were equal, as his infamy was superior, to those of any one of his contemporaries.

ÆTOLIA, a province in the western part of the mainland of Greece, situate on the northern shore of the gulf of Corinth, or Lepanto. It lay west of Doris, Phocis, and Locris, and east of Acarnania, and was divided by the narrow strait between Rhium and Anti-Rhium from Achaia, one of the oldest and most celebrated of the Peloponnesian states, of which the capital was Corinth. It is bounded on the west by the Achelous, now the Aspropotamo, or white river, and by Thessaly on the north. Its chief city was Thermus in the interior, situated on the river Evenus, now Fidhari. On the ruins of this city, which was a strong place on the slope of a pyramidal hill, with a torrent flowing in a deep ravine on either flank, stands the modern town of Vlokhí, as it is spelt by Col. Leake, in his travels in northern Greece, which, though now a place of small note, was the stronghold of the Slavonic races who in the decline of the Byzantine empire conquered this part of Greece and gave it their name, *Vlaskia* or *Vlokhia*, from a Slavonic word *Valakhes*, signifying herdsmen, which still exists as the root of Wallachia, and still retains its original signification in Illyria. It again became a place of importance during the Greek revolution of 1824.—Ætolia is said to have been originally settled by the Curetes, in the ante-heroic times, who were conquered by the hero Ætolus, son of Endymion, with a band of followers from Elis, in the Peloponnesus. They are described by Homer as a warlike people, engaged in constant warfare with the Curetes of Acarnania, and as serving with distinction in the Trojan war, under their leader, Thoas.—During the mythic and heroic ages, Ætolia was distinguished as the seat of many of the richest and most poetical of the legends of early Greece. The famous district of Calydon, situate above the gulf of Corinth, along the river Evenus, was the scene of the famous Calydonian boar hunt, of the strange adventures of Meleager, of Tydeus, the conqueror of Thebes, and of his renowned son Diomed, the opponent of Mars the war-god, in single-handed encounter on the plains of Ilium, and the cruel ravisher of the prophetic maid Cassandra; while its princ-

pal river Achelous it was, whose god in the shape of a bull did battle against Hercules, and, losing one of his horns in the encounter, furnished the goddess of plenty with her cornucopia, the gift of the victor and trophy of the combat. Notwithstanding, however, the mythological celebrity of Ætolia, and its near vicinity to the most early-famous regions of historic Greece, it long continued in a state of uncivilized and unlettered barbarism. In the days of Thucydides, the Ætolians were still a barbarous and uncouth tribe, scarcely regarded as Greeks, and chiefly remarkable for the ferocity of their habits and the strangeness of their tongue. During the Peloponnesian war they played no considerable part, nor do they appear prominently in Greek history until nearly a century after that time, although they were constantly at war with their scarcely less barbarous neighbors the Acarnanians. As the Macedonian kingdom, however, grew into importance, so did the whole of upper and northern Greece, and with the rest Ætolia.—On the death of Philip and the accession of Alexander, the Ætolians displayed such hostility to the young monarch, as, with their aid to the confederate Greeks in the Lamiac war, drew down his signal vengeance. His generals, Craterus and Antipater, wasted their country with fire and sword, devastated and held possession of their rich plains, forcing the people to confine themselves to the fortresses, among their mountain ranges, which are of almost inaccessible strength, and occupied the land until compelled to evacuate it in order to fight at home for the safety of Macedonia against the ambitious designs of Perdiccas. In that obscure passage of Grecian history, the invasion of upper Greece by the Gauls or Celts under Brennus, and the capture of Delphi by that formidable chief, whether his designation be a proper name or a title of authority, it is stated by Pausanias that Greece owed much to the Ætolians for their energy in beating back the hordes of the Celtic savages. If it were so, it is all that Greece owed to them; for there is nothing else recorded of them creditable to them as a people. Their whole history is that of a fierce, fickle, robber horde, ever leaguings with the stronger to oppress the weaker, and fighting on any side to which the hope of plunder allured them. With Alexander of Epirus, the son of Pyrrhus, they formed a base coalition for the sake of dismembering Acarnania for their own advantage; and again, with Cleomenes they banded themselves, hoping to overthrow the Achæan league. After the death of Antigonus Doson, they carried their arms into the Peloponnesus, in a series of predatory incursions rather than regular warlike expeditions, for which they were severely chastised by Philip, who sacked and destroyed their capital, Thermus, in vengeance for their sacrilegious plundering of Dodona, and their capture of Dium in Macedonia. This chastisement, however, led to results more fatal to liberty and to Greece than that "dishonest

victory at Chæronea," which, as Milton sung, "killed by report the old man eloquent." For, when at the close of the second Punic war the Romans were hard set to avert the consequences of the alliance between their immortal hater, Hannibal, and the 6th Philip of Macedon, the Ætolians with their wonted self-seeking and short-sighted policy, attached themselves to the Romans, and enabled them by the employment of a small naval squadron, and a trifling body of forces under the prætor Lævinus, to neutralize all the preparations of Philip, until they had rid themselves of their principal opponent on the field of Zama. In the final conflict with Philip, the Ætolians still consulted their resentments as a tribe, rather than their policy as members of the Hellenic nation, and fought with courage worthy of a better cause, for their Italian allies. At the battle of Cynoscephalæ, their cavalry greatly distinguished itself, charging home no less than ten times against the Macedonians, who were at first victorious, and giving the consul Flaminius time to bring up his reserves, and convert a half-lost day into a complete and glorious victory. For this they expected to reap their reward in the dismemberment of Philip's royalty, but the crafty Romans had no mind to pull down one powerful foe, in order to build up another stronger; and as the Ætolians had become now greatly increased both in power and dominions, having added to the latter much of Acarnania, part of Epirus, Thessaly, and the Phthiotia, they left Philip with sufficient force to hold in check their late ambitious vassals, using their wonted practice of dividing in order to conquer. Perceiving their error when too late, the Ætolians attempted an alliance against their late allies with Antiochus, king of Syria, who had been prompted to hostilities against Rome by the undying energy and hatred of the Carthaginian Hannibal, and had they been properly supported by that monarch might have succeeded. But after a single defeat by the Roman consul Glabrio, in the passes of Thermopylæ, the weak despot retreated into Asia, leaving his Greek confederates to the mercy of the enemy, who gave them peace only on conditions which crippled their power and left them but the shadow of a republic. Their polity from this time, and indeed before this, consisted of a federal government something similar to the Achæan league, deputies for all the states meeting in a common assembly called panætolum, and forming one republic, with an annually elective executive, who had the chief direction of military affairs, subject, however, to the national assembly, with the title of prætor. With the rest of Greece, being swallowed up in the universal empire of Rome, Ætolia followed her fortunes, and, after the division of the imperial unity, shared the reverses of the eastern empire. Possessed, as we have seen, on the irruption of the barbarians, by Slavonic hordes, she was reconquered and partially civilized, together with her neighbors the Illyrians and Dalmatians, by

the great mercantile republic of Venice, during the middle ages, and subsequently became, like the Morea, the battle-ground and scene of deadly conflict between the Venetians and the Ottoman hordes, until the cross waned before the crescent, and western civilization sank for a time beneath the sabres of the janizaries. It is in the gulf, between her shores and those of the Peloponnesus, that was fought the decisive action of Lepanto, which finally saved the west from the arms of the Mussulman, and, after the establishment of the Turkish power in Greece, it is over her plains and mountains, with those of her neighbor Epirus, that the fierce rule of that crafty and able despot, Ali Pasha of Argyro-Castro and Sepeleni, extended. It is within her own confines, too, that were secured and kept alive the sparks of an all but extinct liberty, until the revolution of 1824 kindled them into a blaze of flame and transient glory, which giving augury of better things than followed, won for unhappy Greece a liberty and sovereignty which she has neither been able to maintain, nor to render useful at home or respectable abroad. Her principal seaport town is Missolonghi, on the gulf of Lepanto, famous for the premature death of the poet Byron, who died miserably in that wretched place, when all the worst part of his brilliant but erratic career seemed to be run, and when all signs agreed to point to his assuming the dignities and duties of a nobler manhood than he had as yet deigned to exhibit. The climate of *Ætolia* is delicious, but along the sea-coast and along the swampy river shores, the autumnal season is marked by pestilential fevers. The plains are rich and fertile in maize, wine, silk, and fruits; the mountain scenery is magnificent. The people are, what they seem to have been from the beginning, fierce, fickle, faithless, reckless, and predatory. They are a banditti, as much as they are a people. From the beginning of their history to the end, scarcely any nation is less respectable. They have done no great or noble act, produced no distinguished man, whether for arms or arts, for morals or science.

AFER, *DOMITIUS*, a celebrated orator, born at Nismes, in the reign of Tiberius, died in the reign of Nero, A. D. 60. Quintilian speaks highly of his pleadings, and alludes to his work on witnesses.

AFFER, a weight in use on the gold coast in Africa, the equivalent of our ounce. Its half is called *eggeba*.

AFFIDAVIT, a written statement of facts upon oath, affirmation or declaration,—the name implying "he has sworn." Affidavits may be made either in law-suits, or for the purpose of verifying circumstances independent of legal proceedings. To be valid they must be taken before a judicial or other authority, qualified either at common law or by statute, to administer the oath. Voluntary affidavits, not to be used in any judicial proceeding and not made under a statute, are to be taken as of no effect, inasmuch as their falsity, though highly immoral, will not support perjury.

AFFINITY, in law, is relationship by marriage. Sons-in-law and step-sons are relations by marriage, and therefore come under the category of affinity in contradistinction to relations in blood, whose kindred is by consanguinity.

AFFINITY, *CHEMICAL*, the name given to the force which combines together chemical elements so as to form compounds. Of its real nature or essence we are entirely ignorant, as we are of the essential nature of other material forces. The term, chemical attraction, has also been applied to this force, on the hypothesis that it draws together chemical atoms. In many cases there can be no doubt that the chemical particles come nearer together when they combine: thus if two volumes of hydrogen and one volume of oxygen be caused to unite, we do not get three volumes of steam, but only two; that is, the particles have approached so much closer in combining as to occupy but two-thirds of their former space. In other cases, however, compounds are found to occupy exactly the same space that their elements did before combination, and sometimes they fill even a greater space. Hence the term chemical attraction has been thought objectionable. Chemical affinity is that link or tie which binds together unlike kinds of matter, in such an intimate manner that the properties of the elements are lost, and a compound with new properties is produced. It is in this that it differs from cohesion, which only unites or aggregates similar particles without altering properties. The particles in a piece of iron or sulphur are held in union by cohesion; but when sulphur and iron combine chemically, both elements disappear, lose their properties and identity, and a new compound is formed—the sulphuret of iron. Newness of properties in the compounds formed is the distinguishing peculiarity of chemical affinity. It obliterates the characteristics of the elements, and generates new properties in the product. Cohesion is usually said to act between homogeneous particles, as in the cases just cited of sulphur and iron, but it may also act between dissimilar substances, as where silver is inlaid with steel, or copper metal united to tin, or iron coated with zinc, or wood joined to glue, or paper to paste, or pitch to the fingers. These, however, are mechanical combinations; there is no destruction of the properties of the combined substances, and those of the combination are not new, but are the same as the properties of the constituent substances, each of which retains its individuality. The force of gravitation is brought into play between masses of matter at all distances; chemical affinity acts only when the elements are in contact or at insensible distances. For this reason affinity is most energetic when one or both of the elements are in a state of solution, the approach of the atoms being then most perfect. It was once thought that chemical affinity could not take effect without the intervention of solution; and although the statement is generally true, yet there are some

substances whose affinities are so intense that they will unite even in the solid state when made to touch each other. The action of affinity is heightened, modified, and suspended by various other causes. Among these heat is most potent, and most easily available in the laboratory and chemical manufactory. Thus carbonic acid and lime unite strongly at common temperatures, forming marble or limestone, but at a red heat their affinity is annihilated and they separate. On the other hand, potash and sand will not actively combine at ordinary temperatures, while at a red or white heat, at which they are melted, combination takes place and glass is formed. Light also influences affinity, promoting combination and decomposition. If chlorine and hydrogen gases be mixed in the dark they will not unite, but exposed to light they combine at once; while in every green vegetable leaf, carbonic acid is decomposed every day under the influence of solar light. The recent investigations in photography have greatly multiplied the number of substances over which light is known to exert a chemical influence. Electricity, also, has a governing action over affinity. An electric spark, shot through a mixture of oxygen and hydrogen gases, causes them to combine instantaneously and explosively, producing water; while a steady electric stream sent through the water annuls the affinity of its elements and sets them free again. Other causes also, known and unknown, affect in various ways and degrees the play of affinity; indeed, a full statement of them would involve almost the whole science of chemistry. The changes in the properties of substances produced by affinity are numberless and surprising. When solid charcoal and sulphur combine, the compound formed is colorless as water, and highly volatile. If yellow sulphur and bluish white quicksilver be heated together, they form the bright red vermilion. Waxy phosphorus and colorless invisible oxygen unite to form a white body resembling snow. Nitrogen and oxygen are tasteless, separate or mixed; yet one of their compounds, laughing gas, is sweet; and another, nitric acid, intensely sour—they are both transparent and invisible, yet they form a cherry-red compound gas. Charcoal and hydrogen are odorless; nevertheless, many of our choicest perfumes, such as oils of roses and bergamot, as well as the less agreeable spirits of turpentine and illuminating gas, contain only these elements. The mild and scentless nitrogen and hydrogen give rise to one of the most odorous and pungent compounds, ammonia; while suffocating and poisonous chlorine, united to a bright metal sodium, yields common salt. Charcoal, hydrogen, and nitrogen, which singly or mixed are not injurious to life, yet combine to form the terrible poison, prussic acid; while charcoal, hydrogen, and oxygen, variously united, produce sweet sugar, poisonous oxalic acid, and intoxicating alcohol. The strength of affinity

among different elements is various. Thus the chemical energies of sulphuric acid are superior to those of carbonic acid; if the former be united to carbonate of lime it takes the lime away from the carbonic acid; that is, produces decomposition and a new compound. It has been attempted to establish a scale of affinities among various chemical substances to form the basis of an order of decomposition. But affinity is disturbed and overcome by so many circumstances that such tables are of but little value. The laws of affinity or chemical combination will be described under *ATOMIC THEORY*.

AFFIRMATION, in law, a mode of giving evidence in judicial proceedings, adopted by Quakers and other persons generally on account of religious scruples, which prevent them from taking the oath. In this country, all persons are usually permitted to affirm upon expressing their preference for that form, and the mode of taking the affirmation is "upon the penalties of the statute," which are the same in the case of false affirmation as in perjury. This form of taking evidence was first introduced into the English law out of compliance with the demands of the Quakers, who obstinately refused to "swear," and it is there in terms still confined to them among Christians; although Pagans, Mohammedans, and believers in other forms of religion, are sworn, or give evidence in such manner as is ascertained to be binding on their conscience.

AFFLATUS (Lat. *ad* to, and *flare*, to blow), signifying strictly a blast of wind or vapor, striking against a body with violence; is also employed to mean inspiration, or the gift of prophecy. Cicero uses it to express the idea of a divine inspiration. The Pythian priestess being first placed on her tripod in the sacred cave, received the divine afflatus from beneath, and immediately went into convulsions, during which she uttered the divine mandates. This afflatus is believed to have been a stimulating exhalation, from drugs employed for the purpose.

AFFOGADOS, a Brazilian village, in the province of Pernambuco, with a population of 1,000. It is situated on the left bank of one of the outlets of the Capibaribe, near the sea. The harbor accommodates large vessels, and some trade in sugar and cotton is carried on.

AFFRE, DENIS AUGUSTE, archbishop of Paris, born at Saint-Rome-du-Tarn in France, 1793, shot at Paris in the insurrection of June, 1848, and died on the 27th of that month. He was educated in the seminary of Saint Sulpice, and was made teacher of philosophy in the ecclesiastical school of Nantes, even before he had attained the age required for the priesthood. When invested with holy orders, he was attached successively to the seminary of Saint Sulpice and to the foundling hospital. Afterwards as vicar he assisted the bishops of Luçon and Amiens. In this last capacity he signalized himself by an act of independence and moral courage. The king, Louis Philippe, having

gone to Amiens in 1831, the Abbé Affre was intrusted with the duty of addressing him in the name of the clergy, and pronounced a fervid speech against the sovereign, whom he considered as an usurper. Nevertheless, 8 years after, he was attached to the diocese of Paris, with the title of honorary vicar. In 1839, he was promoted to the coadjutorship in Strasbourg, but never took possession of this office, for the archbishop's see of Paris having become vacant by the death of M. de Quelen, M. Affre was appointed to it, and consecrated 1840. As archbishop of Paris, he distinguished himself specially by zeal in the cause of ecclesiastical education, and by several theological works which he published. But he became more illustrious by his death than by his life, however meritorious the latter may have been. While the insurrection of June, 1848, was raging in the streets of Paris, the pious archbishop determined to make a personal attempt to stop the shedding of blood. He called upon Gen. Cavaignac, the head of the executive power, and commander-in-chief of the army, and although warned of the great danger of his generous undertaking, he repaired to the faubourg St. Antoine, the stronghold of the insurgents. On his appearance between the two hostile parties, the firing was suspended, and he calmly and steadily proceeded toward the barricades without any protection except the gold cross hanging on his breast, and a green olive branch carried before him, in token of peace, by a single attendant. He was admitted behind the barricades, where some gratefully welcomed him, while others kept silent or even did not conceal a threatening dissatisfaction. He had just begun to address the insurgents, when the report of a musket was immediately followed by a renewal of hostilities, and in the confusion the archbishop fell, shot by some unknown hand. While he was transported to the hospital of the *guinea-vingie*, some of the assistants uttered some threats of revenge: "No, my friends," exclaimed the dying prelate, "don't avenge me; too much blood has already been shed. Would to God that mine might be the last!" He expired a martyr of charity, and an object of universal admiration and regret, as was proclaimed on the following day by a special decree of the national assembly.

AFFRY, LOUIS AUGUSTUS, COUNT D', a Swiss officer in the service of France at the time of the revolution of '89, born 1743, died 1810. He was in command of an army on the Rhine, took an important part in the affairs of the Helvetic republic, and was received with favor by Napoleon.—CHARLES, son of the foregoing, was also in the Swiss guards of Louis XVI., and escaped massacre by his absence in Normandy at the head of a detachment. He served under the empire. When Napoleon escaped from Elba, he declined serving with him, and besieged Pontarlier at the head of a detachment of the allies. He was made a general by Louis XVIII., and colonel of one of the regiments of guards. He died in 1818.

AFGHANISTAN, an extensive country of Asia, north-west of India. It lies between Persia and the Indies, and in the other direction between the Hindoo Koosh and the Indian Ocean. It formerly included the Persian provinces of Khorassan and Kohistan, together with Herat, Beloochistan, Cashmere, and Sinde, and a considerable part of the Punjab. In its present limits there are probably not more than 4,000,000 inhabitants. The surface of Afghanistan is very irregular,—lofty table lands, vast mountains, deep valleys, and ravines. Like all mountainous tropical countries it presents every variety of climate. In the Hindoo Koosh, the snow lies all the year on the lofty summits, while in the valleys the thermometer ranges up to 130°. The heat is greater in the eastern than in the western parts, but the climate is generally cooler than that of India; and although the alternations of temperature between summer and winter, or day and night, are very great, the country is generally healthy. The principal diseases are fevers, catarrhs, and ophthalmia. Occasionally the small-pox is destructive. The soil is of exuberant fertility. Date palms flourish in the oases of the sandy wastes; the sugar cane and cotton in the warm valleys; and European fruits and vegetables grow luxuriantly on the hill-side terraces up to a level of 6,000 or 7,000 feet. The mountains are clothed with noble forests, which are frequented by bears, wolves, and foxes, while the lion, the leopard, and the tiger, are found in districts congenial to their habits. The animals useful to mankind are not wanting. There is a fine variety of sheep of the Persian or large-tailed breed. The horses are of good size and blood. The camel and ass are used as beasts of burthen, and goats, dogs, and cats, are to be found in great numbers. Beside the Hindoo Koosh, which is a continuation of the Himalayas, there is a mountain chain called the Solyman mountain, on the south-west; and between Afghanistan and Balkh, there is a chain known as the Paropamisian range, very little information concerning which has, however, reached Europe. The rivers are few in number; the Helmund and the Cabool are the most important. These take their rise in the Hindoo Koosh, the Cabool flowing east and falling into the Indus near Attock; the Helmund flowing west through the district of Seistan and falling into the lake of Zurrah. The Helmund has the peculiarity of overflowing its banks annually like the Nile, bringing fertility to the soil, which, beyond the limit of the inundation, is sandy desert. The principal cities of Afghanistan are Cabool, the capital, Ghuznee, Peshawer, and Candahar. Cabool is a fine town, lat. 34° 10' N. long. 60° 43' E., on the river of the same name. The buildings are of wood, neat and commodious, and the town being surrounded with fine gardens, has a very pleasing aspect. It is environed with villages, and is in the midst of a large plain encircled with low hills. The tomb of the emperor Baber is its chief monument. Peshawer is a large city, with

a population estimated at 100,000. Ghuznee, a city of ancient renown, once the capital of the great sultan Mahmoud, has fallen from its great estate and is now a poor place. Near it is Mahmoud's tomb. Candahar was founded as recently as 1754. It is on the site of an ancient city. It was for a few years the capital; but in 1774 the seat of government was removed to Cabool. It is believed to contain 100,000 inhabitants. Near the city is the tomb of Shah Ahmed, the founder of the city, an asylum so sacred that even the king may not remove a criminal who has taken refuge within its walls. The geographical position of Afghanistan, and the peculiar character of the people, invest the country with a political importance that can scarcely be over-estimated in the affairs of central Asia. The government is a monarchy, but the king's authority over his high-spirited and turbulent subjects, is personal and very uncertain. The kingdom is divided into provinces, each superintended by a representative of the sovereign, who collects the revenue and remits it to the capital. The Afghans are a brave, hardy, and independent race; they follow pastoral or agricultural occupations only, eschewing trade and commerce, which they contemptuously resign to Hindoos, and to other inhabitants of towns. With them, war is an excitement and relief from the monotonous occupation of industrial pursuits. The Afghans are divided into clans, over which the various chiefs exercise a sort of feudal supremacy. Their indomitable hatred of rule, and their love of individual independence, alone prevents their becoming a powerful nation; but this very irregularity and uncertainty of action makes them dangerous neighbors, liable to be blown about by the wind of caprice, or to be stirred up by political intriguers, who artfully excite their passions. The two principal tribes are the Dooranees and Ghiljies, who are always at feud with each other. The Dooranee is the more powerful; and in virtue of their supremacy their ameer or khan made himself king of Afghanistan. He has a revenue of about \$10,000,000. His authority is supreme only in his tribe. The military contingents are chiefly furnished by the Dooranees; the rest of the army is supplied either by the other clans, or by military adventurers who enlist into the service in hopes of pay or plunder. Justice in the towns is administered by cadis, but the Afghans rarely resort to law. Their khans have the right of punishment even to the extent of life or death. Avenging of blood is a family duty; nevertheless, they are said to be a liberal and generous people when unprovoked, and the rights of hospitality are so sacred that a deadly enemy who eats bread and salt, obtained even by stratagem, is sacred from revenge, and may even claim the protection of his host against all other danger. In religion they are Mohammedans, and of the Soonee sect; but they are not bigoted, and alliances between Sheeahs and Soonees are by no means uncommon. Afghanistan has been subjected alternately

to Mogul and Persian dominion. Previous to the advent of the British on the shores of India the foreign invasions which swept the plains of Hindostan always proceeded from Afghanistan. Sultan Mahmoud the Great, Genghis Khan, Tamerlane, and Nadir Shah, all took this road. In 1747 after the death of Nadir, Shah Ahmed, who had learned the art of war under that military adventurer, determined to shake off the Persian yoke. Under him Afghanistan reached its highest point of greatness and prosperity in modern times. He belonged to the family of the Sudosis, and his first act was to seize upon the booty which his late chief had gathered in India. In 1748 he succeeded in expelling the Mogul governor from Cabool and Peshawar, and crossing the Indus he rapidly overran the Punjaub. His kingdom extended from Khorassan to Delhi, and he even measured swords with the Mahratta powers. These great enterprises did not, however, prevent him from cultivating some of the arts of peace, and he was favorably known as a poet and historian. He died in 1772, and left his crown to his son Timour, who, however, was unequal to the weighty charge. He abandoned the city of Candahar, which had been founded by his father, and had, in a few years, become a wealthy and populous town, and removed the seat of government back to Cabool. During his reign the internal dissensions of the tribes, which had been repressed by the firm hand of Shah Ahmed, were revived. In 1793 Timour died, and Siman succeeded him. This prince conceived the idea of consolidating the Mohammedan power of India, and this plan, which might have seriously endangered the British possessions, was thought so important that Sir John Malcolm was sent to the frontier to keep the Afghans in check, in case of their making any movement, and at the same time negotiations were opened with Persia, by whose assistance the Afghans might be placed between two fires. These precautions were, however, unnecessary; Siman Shah was more than sufficiently occupied by conspiracies, and disturbances at home, and his great plans were nipped in the bud. The king's brother, Mohammed, threw himself into Herat with the design of erecting an independent principality, but failing in his attempt he fled into Persia. Siman Shah had been assisted in attaining the throne by the Bairukshee family, at the head of which was Sheir Afras Khan. Siman's appointment of an unpopular vizier excited the hatred of his old supporters, who organized a conspiracy which was discovered, and Sheir Afras was put to death. Mohammed was now recalled by the conspirators, Siman was taken prisoner and his eyes put out. In opposition to Mohammed, who was supported by the Dooranees, Shah Soojah was put forward by the Ghiljies, and held the throne for some time; but he was at last defeated, chiefly through the treachery of his own supporters, and was forced to take refuge amongst the Sikhs. In 1809 Napoleon had sent Gen. Gardanne to Persia in

the hope of inducing the shah to invade India, and the Indian government sent a representative to the court of Shah Soojah to create an opposition to Persia. At this epoch, Runjeet Singh rose into power and fame. He was a Sikh chieftain, and by his genius made his country independent of the Afghans, and erected a kingdom in the Punjab, earning for himself the title of Maharajah (chief rajah), and the respect of the Anglo-Indian government. The usurper Mohammed was, however, not destined to enjoy his triumph long. Futtah Khan, his vizier, who had alternately fluctuated between Mohammed and Shah Soojah, as ambition or temporary interest prompted, was seized by the king's son Kamran, his eyes put out, and afterward cruelly put to death. The powerful family of the murdered vizier swore to avenge his death. The puppet Shah Soojah was again brought forward and Mohammed expelled. Shah Soojah having given offence, however, was presently deposed, and another brother crowned in his stead. Mohammed fled to Herat, of which he continued in possession, and in 1829 on his death his son Kamran succeeded him in the government of that district. The Bairukshes family, having now attained chief power, divided the territory among themselves, but following the national usage quarrelled, and were only united in presence of a common enemy. One of the brothers, Mohammed Khan, held the city of Peshawer, for which he paid tribute to Runjeet Singh; another held Ghuznee; a third Candahar; while in Cabool, Dost Mohammed, the most powerful of the family, held sway. To this prince, Capt. Alexander Burnes was sent as ambassador in 1835, when Russia and England were intriguing against each other in Persia and Central Asia. He offered an alliance which the Dost was but too eager to accept; but the Anglo-Indian government demanded every thing from him, while it offered absolutely nothing in return. In the mean time, in 1838, the Persians, with Russian aid and advice, laid siege to Herat, the key of Afghanistan and India; a Persian and a Russian agent arrived at Cabool, and the Dost, by the constant refusal of any positive engagement on the part of the British, was, at last, actually compelled to receive overtures from the other parties. Burnes left, and Lord Auckland, then governor-general of India, influenced by his secretary W. McNaghten, determined to punish Dost Mohammed, for what he himself had compelled him to do. He resolved to dethrone him, and to set up Shah Soojah, now a pensioner of the Indian government. A treaty was concluded with Shah Soojah, and with the Sikhs; the shah began collecting an army, paid and officered by the British, and an Anglo-Indian force was concentrated on the Sutlej. McNaghten, seconded by Burnes, was to accompany the expedition in the quality of envoy in Afghanistan. In the mean time the Persians had raised the siege of Herat, and thus the only valid reason for interference in Afghanistan was removed,

but, nevertheless, in December 1838, the army marched toward Sinde, which country was coerced into submission, and the payment of a contribution for the benefit of the Sikhs and Shah Soojah. Feb. 20, 1839, the British army passed the Indus. It consisted of about 12,000 men, with above 40,000 camp-followers, beside the new levies of the shah. The Bolan pass was traversed in March; want of provisions and forage began to be felt; the camels dropped by hundreds, and a great part of the baggage was lost. April 7, the army entered the Kojuk pass, traversed it without resistance, and on April 25 entered Candahar, which the Afghan princes, brothers of Dost Mohammed, had abandoned. After a rest of two months, Sir John Keane, the commander, advanced with the main body of the army toward the north, leaving a brigade under Nott, in Candahar. Ghuznee, the impregnable stronghold of Afghanistan, was taken, July 22, a deserter having brought information that the Cabool gate was the only one which had not been walled up; it was accordingly blown down, and the place was then stormed. After this disaster, the army which Dost Mohammed had collected, at once disbanded, and Cabool too opened its gates, Aug. 6. Shah Soojah was installed in due form, but the real direction of government remained in the hands of McNaghten, who also paid all Shah Soojah's expenses out of the Indian treasury. The conquest of Afghanistan seemed accomplished, and a considerable portion of the troops was sent back. But the Afghans were noways content to be ruled by the *Feringhee Kafirs* (European infidels), and during the whole of 1840 and '41, insurrection followed on insurrection in every part of the country. The Anglo-Indian troops had to be constantly on the move. Yet, McNaghten declared this to be the normal state of Afghan society, and wrote home that every thing went on well, and Shah Soojah's power was taking root. In vain were the warnings of the military officers and the other political agents. Dost Mohammed had surrendered to the British in October, 1840, and was sent to India; every insurrection during the summer of '41 was successfully repressed, and toward October, McNaghten, nominated governor of Bombay, intended leaving with another body of troops for India. But then the storm broke out. The occupation of Afghanistan cost the Indian treasury £1,250,000 per annum; 16,000 troops, Anglo-Indian, and Shah Soojah's, had to be paid in Afghanistan; 8,000 more lay in Sinde, and the Bolan pass; Shah Soojah's regal splendors, the salaries of his functionaries, and all expenses of his court and government, were paid by the Indian treasury, and finally, the Afghan chiefs were subsidized, or rather bribed, from the same source, in order to keep them out of mischief. McNaghten was informed of the impossibility of going on at this rate of spending money. He attempted retrenchment, but the only possible way to enforce it was to cut down the allow-

ances of the chiefs. The very day he attempted this, the chiefs formed a conspiracy for the extermination of the British, and thus McNaghten himself was the means of bringing about the concentration of those insurrectionary forces, which hitherto had struggled against the invaders singly, and without unity or concert; though it is certain, too, that by this time the hatred of British dominion among the Afghans had reached the highest point.—The English in Cabool were commanded by Gen. Elphinstone, a gouty, irresolute, completely helpless old man, whose orders constantly contradicted each other. The troops occupied a sort of fortified camp, which was so extensive that the garrison was scarcely sufficient to man the ramparts, much less to detach bodies to act in the field. The works were so imperfect that ditch and parapet could be ridden over on horseback. As if this was not enough, the camp was commanded almost within musket range by the neighboring heights, and to crown the absurdity of the arrangements, all provisions, and medical stores, were in two detached forts at some distance from camp, separated from it, moreover, by walled gardens and another small fort not occupied by the English. The citadel or Bala Hissar of Cabool would have offered strong and splendid winter quarters for the whole army, but to please Shah Soojah, it was not occupied. Nov. 2, 1841, the insurrection broke out. The house of Alexander Burnes, in the city, was attacked and he himself murdered. The British general did nothing, and the insurrection grew strong by impunity. Elphinstone, utterly helpless, at the mercy of all sorts of contradictory advice, very soon got every thing into that confusion which Napoleon described by the three words, *ordre, contreordre, désordre*. The Bala Hissar was, even now, not occupied. A few companies were sent against the thousands of insurgents, and of course were beaten. This still more emboldened the Afghans. Nov. 8, the forts close to the camp were occupied. On the 9th, the commissariat fort (garrisoned by only 80 men) was taken by the Afghans, and the British were thus reduced to starvation. On the 5th, Elphinstone already talked of buying a free passage out of the country. In fact, by the middle of November, his irresolution and incapacity had so demoralized the troops that neither Europeans nor Sepoys were any longer fit to meet the Afghans in the open field. Then the negotiations began. During these, McNaghten was murdered in a conference with Afghan chiefs. Snow began to cover the ground, provisions were scarce. At last, Jan. 1, a capitulation was concluded. All the money, £190,000, was to be handed over to the Afghans, and bills signed for £140,000 more. All the artillery and ammunition, except 6 six-pounders and 8 mountain guns, were to remain. All Afghanistan was to be evacuated. The chiefs, on the other hand, promised a safe conduct, provisions, and baggage cattle. Jan. 5, the British marched out, 4,500 com-

batants and 12,000 camp-followers. One march sufficed to dissolve the last remnant of order, and to mix up soldiers and camp-followers in one hopeless confusion, rendering all resistance impossible. The cold and snow and the want of provisions acted as in Napoleon's retreat from Moscow. But instead of Cossacks keeping a respectful distance, the British were harassed by infuriated Afghan marksmen, armed with long-range matchlocks, occupying every height. The chiefs who signed the capitulation neither could nor would restrain the mountain tribes. The Koord-Cabool pass became the grave of nearly all the army, and the small remnant, less than 200 Europeans, fell at the entrance of the Jugduluk pass. Only one man, Dr. Brydon, reached Jelalabad to tell the tale. Many officers, however, had been seized by the Afghans, and kept in captivity. Jelalabad was held by Sale's brigade. Capitulation was demanded of him, but he refused to evacuate the town, so did Nott at Candahar. Ghuznee had fallen; there was not a single man in the place that understood any thing about artillery, and the Sepoys of the garrison had succumbed to the climate. In the mean time, the British authorities on the frontier, at the first news of the disaster of Cabool, had concentrated at Peshawar the troops destined for the relief of the regiments in Afghanistan. But transportation was wanting and the Sepoys fell sick in great numbers. Gen. Pollock, in February, took the command, and by the end of March, 1842, received further reinforcements. He then forced the Khyber pass, and advanced to the relief of Sale at Jelalabad; here Sale had a few days before completely defeated the investing Afghan army. Lord Ellenborough, now governor-general of India, ordered the troops to fall back; but both Nott and Pollock found a welcome excuse in the want of transportation. At last, by the beginning of July, public opinion in India forced Lord Ellenborough to do something for the recovery of the national honor and the prestige of the British army; accordingly, he authorized an advance on Cabool, both from Candahar and Jelalabad. By the middle of August, Pollock and Nott had come to an understanding respecting their movements, and Aug. 20, Pollock moved towards Cabool, reached Gundamuck, and beat a body of Afghans on the 23d, carried the Jugduluk pass Sept. 8, defeated the assembled strength of the enemy on the 18th at Tezeen, and encamped on the 15th under the walls of Cabool. Nott, in the mean time, had, Aug. 7, evacuated Candahar, and marched with all his forces toward Ghuznee. After some minor engagements, he defeated a large body of Afghans, Aug. 30, took possession of Ghuznee, which had been abandoned by the enemy, Sept. 6, destroyed the works and town, again defeated the Afghans in the strong position of Alydan, and, Sept. 17, arrived near Cabool, where Pollock at once established his communication with him. Shah Soojah had, long before, been

murdered by some of the chiefs, and since then no regular government had existed in Afghanistan; nominally, Futeh Jung, his son, was king. Pollock despatched a body of cavalry after the Cabool prisoners, but these had succeeded in bribing their guard, and met him on the road. As a mark of vengeance, the bazaar of Cabool was destroyed, on which occasion the soldiers plundered part of the town and massacred many inhabitants. Oct. 12, the British left Cabool and marched by Jelalabad and Peshawar to India. Futeh Jung, despairing of his position, followed them. Dost Mohammed was now dismissed from captivity, and returned to his kingdom. Thus ended the attempt of the British to set up a prince of their own making in Afghanistan.

AFIOOM, or **AFIUM KARAHISSAR** (Black Castle of Opium), so called from its extensive trade in opium, which grows in its vicinity, is a city in Anatolia, Asia Minor, capital of a sanjak, 50 miles S. S. E. of Kutaieh. It is neatly built upon a mountain side, protected by a fortress, which is perched upon a high rock above it. Manufactories of carpets, felts, arms, stirrups, and saddlery are carried on by the inhabitants. Estimated population 60,000.

AFORE, all that part of a ship which lies forward or near the stem. The term is also used as a preposition, equivalent to before, especially by sailors; *e. g.*, afore the mast means before the mast.

AFRA, *Str.*, was born, according to the legend, at Augsburg, and was dedicated by her mother to the service of the Cyprian Venus. Bishop Narcissus, who came to Augsburg from Spain on account of the persecution of Christians by Diocletian in that country, prevailed upon herself and mother, together with three other maidens, to renounce the heathen worship and to embrace Christianity. Being sentenced to death on this account by the Roman judge, Gaius, she was burned at the stake, Aug. 7, 304.

AFRANCESADOS, the name given to those Spaniards who swore allegiance to Joseph Bonaparte and the constitution of Bayonne, hoping for an improved order of things. They were treated with great severity by Ferdinand VII. after his restoration in 1814. In 1820, however, he issued a proclamation of a general pardon, and the cortes voted that their property should be restored, but not the offices or pensions which they had formerly enjoyed.

AFRANIUS, *Lucius*, a Latin poet, who flourished in the century preceding the Christian era. His genius and fluent style are praised by Cicero and Quintilian. In writing comedies, he copied Menander. Only some fragments of his works remain.

AFRASIAB, a king of Turan, in Tartary, between the Caspian sea and the Chinese frontiers. He was descended from Tur, a son of the Persian king, Feridun, and belonged to the family of the Persian dynasty of the Pishdadians. He claimed the empire of Iran on these grounds,

and by means of a successful war with Gustasp, the reigning king, and the protector of Zoroaster, made good his pretensions for a space of twelve years.

AFREEDIS, an Afghan tribe, also known by the name of Kyburees, living among the Kyber hills, on the borders of Cabool and the Punjaub. In return for a safe conduct through the defiles of these hills, they were accustomed to demand a toll. They opposed the passage of detachments of British troops several times during the Afghan war, and underwent a severe castigation in consequence.

AFRICA is the division of the world which is the most interesting, and about which we know the least. Its name is a mystery; it is supposed to be derived from Afrigah, which word, in the ancient Phœnician, is said to have meant colony; the name given by the founders of Carthage to their territory, having spread to the whole continent. Its size is unknown; geographers estimate that the total area may be equal to 8,500,000 geographical miles, exclusive of the islands. Its population is an unsolved problem; geographers have set it down at various figures, of which the lowest is 60,000,000, the highest 110,000,000. Its configuration is a matter of guess-work; it is supposed that the northern half is a plain with mountain ranges on the east, and the desert of Sahara on the south, while the southern half is an elevated table-land, with a ridge of mountains running north and south, some of which are clad in perpetual snow, with lakes believed to be of large extent, with rivers which are sanguinely expected to prove navigable, and with plains in various parts remarkable for fertility. But it will be borne in mind that much of this presumed configuration rests upon conjecture. In regard to the ethnology and languages of Africa, we know hardly any thing. The races of the eastern coast are wholly different from those of the west; and the contrast is accounted for, by a supposed admixture of Arab and Jewish blood with the people of the former. In the north, the Arabs are again made to do duty, to explain the ethnological peculiarities of the races on the Mediterranean. Of the people of the centre of the continent we have as yet no satisfactory account. In the south, there is another race which in some respects is unique in the world; no theory has accounted for its origin.—The languages of the continent are numerous, and varied. Each tribe has a language of its own, and many have two—a dead and a living tongue. This multiplicity of languages may be illustrated by the fact that the people of the islands in Lake Tchad—which is sometimes quite dry in hot seasons—speak a language which is not understood by the residents of the lake shores. None of the native African languages are thoroughly understood by foreigners.—It is generally understood that the shape of the continent bears a rude resemblance to a palm leaf; but we are far from knowing the exact outline. Of the 16,048 miles of coast line,

nearly 1,500 miles—namely, from El Arish to Alexandria, from Cape Spartel to Cape Bojador, from Cape Bojador to Cape Mirik—have never been accurately surveyed. The only portions of Africa that were known to the ancient nations which have left written records of their history were Egypt and the northern coast. That Egypt was the cradle of many of the arts, and much of the civilization of Greece, there appears excellent reason to believe; and we may also safely state that Egypt was a comparatively civilized country, when Europe was in a state of absolute barbarism. But little reliance, however, can be placed on the dates given by chronographers in reference to the leading events of Egyptian history and that of ancient Africa generally. The conquest of Cambyses is usually placed in the year 525 B. C.; and the foundation of Carthage, previous to the 8th century B. C. We know little of either from the Roman or Greek writers before the 4th century B. C. At that time, the territory known to, and partly inhabited by the Egyptians, extended from the confines of the present Abyssinia to the Mediterranean; while the Carthaginians and other tribes of the coast, including such Greek colonies as Cyrene, did not probably spread to any great distance inland. There is a story that the Carthaginians made their way across the desert as far as the Niger; Herodotus asserts that Necho, king of Egypt, fitted out an expedition which circumnavigated Africa; in the curious work, called *Periplus*, Hanno is said to have sailed as far as the Bight of Benin. But none of these stories rest on historical evidence. Modern Egypt and the strip of coast along the Mediterranean, are the only parts of Africa which can be said positively to have been known to those ancient nations which are known to us. From the fall of Alexander's empire to the beginning of the 16th century, no further African discoveries were made; though the Jews and Arabs penetrated largely into Egypt, Nubia, Abyssinia, and the northern countries, and established themselves in many parts to the exclusion of the natives.—Early in the 15th century, the Portuguese, then a leading maritime nation, took in hand the circumnavigation of Africa, and accomplished it in the space of about a century. The work employed the greatest sailors Portugal has ever produced—they were animated by a unity of purpose and a zeal in the work of discovery, worthy of high commendation; their names—Gilianez, Gonzales, Tristan, Fernandez, Lançarote, Prince Henry of Portugal, Fernando Po, John de Santarem, Diego Cam, Bartholomew Diaz, Vasco da Gama—deserve to occupy a place of honor among the naval heroes of the world. Under their command, the coast of Africa, from Egypt to the Indian ocean, was roughly explored, and the capes and bays laid down. At a date, not accurately ascertained, but probably about the beginning of the 16th century, the French had settlements on the west coast of Africa, near the mouth of the

river Gambia. A limited trade was carried on by various mercantile associations at Dieppe and other ports with the African coast; but one after another, all the companies failed, and the French commerce with western Africa came to an end. While it lasted, the Senegal was ascended by Sieur Brue, and various towns visited; M. Compagnon traversed the whole of the kingdom of Galam; and one or more tours of discovery in the interior were made by the French parties. Accounts of these journeys may be found in the French works of travel on Africa; but the reader must receive them with due caution.—At an early period settlements on the western coast of Africa were made by the English and Dutch. The latter likewise planted colonies in S. Africa as early as 1650. None of these establishments added to the public knowledge of the continent; they were based on a purely mercantile principle, and led to no voyages or tours of discovery. In 1788, a society was formed in London for the exploration of inner Africa. In 1795, the first useful journey performed under the auspices of the society—that of Mungo Park—was undertaken. He started from the vicinity of the mouth of the Gambia, and traversed the country to the Niger or Joliba, visiting various towns in the interior, holding friendly intercourse with the native tribes, and acquiring a useful acquaintance with the course of the rivers and the configuration of the Sahara. On his second visit, in 1805, he visited Timbuctoo, and intended descending the Joliba to its mouth; but he was killed on the river near Boocsa. Several journeys were made shortly afterward from points in Egypt and on the Mediterranean to the interior; one or two travellers reached Moorzook. In 1816, the Congo river, which was believed to be identical with the Joliba, was explored by a British vessel, for over a hundred miles from its mouth; but the discoveries were few, and the loss of life severe.—In 1822, the next great expedition, that of Denham and Clapperton, was commenced. These great travellers left Tripoli with a caravan of merchants, traversed the desert, and reached the inland lake called Tchad. There they separated; Major Denham explored the lake and its shores, while Lieut. Clapperton traversed the kingdom of Bornoo as far as Sackatoo. Returning to England, Lieut. Clapperton set out on a fresh expedition on the traces of Mungo Park. Starting from a point not far from Cape Coast Castle, and travelling in a north-easterly direction, he struck the Niger at Boocsa, crossed it and visited the commercial mart of Kano. Thence he pushed on as far as Sackatoo, where he died; without indeed discovering the course of the Niger, which was his main object, but being the only man alive who had traversed Africa from the Mediterranean to the gulf of Guinea. The great object of so many perilous journeys was at length achieved by Richard Lander, Lieut. Clapperton's servant, and his brother. They started from the same point as their mas-

ter, near Cape Coast Castle, and travelled to Boossa; there they took the river, and followed it down to the coast, identifying the Joliba of the interior with the river Nun of the seaboard. Lander performed a second voyage of discovery in a remarkably well appointed expedition fitted out by the merchants of Liverpool; he succeeded in ascending the Quorra and the Tchadda in steamers for many miles; but no trade could be established with the natives, and the loss of life from fever was very severe. Since then several expeditions have partially ascended or attempted to ascend these rivers; but hitherto, the fatal fever which assails all white persons on such a navigation has proved an insuperable bar to success.—During the last century southern Africa has been pretty thoroughly explored—between lat. 20° and the southern cape. Journeys of exploration were performed by Capt. Henry Hays, in 1761, by Sparrman and Vaillant in 1775–85, by Barrow in 1797, by Trutter and Somerville in 1801, by Burchell in 1812, Campbell in 1820, Andrew Smith in 1835–36, Alexander in 1836–37. The coast from Port Natal to the Tropic of Capricorn, was laid down by Delegorgue. Years afterward, in 1849–52, a tour of discovery was made by Dr. Livingstone, which resulted in the discovery of the great lake Ngami, and several fine rivers flowing into it. And lastly, Mr. Frank Galton and Mr. Andersson traversed the country lying between 17° lat. and the Bechuanaland territory previously explored; extending their journey to the eastward as far as lake Ngami.—More recently, an expedition sent out by the British government for the purpose of establishing relations with the nations of north and central Africa, added largely to our knowledge of the interior of the continent. Dr. Barth, the chief of the expedition, is now engaged in publishing his journal at Berlin. It gives a full description of the immense tract of country lying between Tripoli and Lake Tchad, and surrounding that lake. He lost his companion, Dr. Overweg, *en route*, and we have since heard that his successors and disciples, Vogel and Maguire, have been murdered by the natives.—On the east coast, valuable discoveries have been made by Lieut. Burton, who lately visited the ancient city of Harar, and prosecuted with vigor and success a tour of exploration through the Somali country.—Finally, Dr. Livingstone's new work on the Bechuanaland and the country lying between the two oceans about the 20th parallel, completes a useful though rough triangulation of this great continent.—The geography may be understood generally by the following brief sketch: Africa possesses an area of 8,480,000 square geographical miles, or 11,286,000 square statute miles. Its length is estimated at 4,968 statute miles, and its breadth at 4,692 statute miles. The aboriginal inhabitants, so far as is known, consist of two stocks, the Negroes in the S. and the Caucasian Berbers (Kabyles, Copts, and Nubians) in the N. Interposed between them

are the Arabians and their posterity, the Moors, in the N. and E. In the N. lie Egypt, Barbary, the desert of Sahara, Nubia, and Abyssinia.—Egypt is situated on both banks of the river Nile, and embraces about 128,000 square geographical miles, with 2,500,000 inhabitants, mostly Arabians, and either Fellahs, 1,800,000 in number, or nomadic tribes amounting to 200,000. Next to these come the Copts, 150,000. Besides these there are the Berabras, and in the S. some 15,000 Turks and some 35,000 Jews. The prevailing religion is the Mohammedan. The Copts profess Christianity. After 1517 Egypt was a Turkish province, but now it simply acknowledges the supremacy of the Porte—the viceroy, since 1848, having been almost entirely independent. Three principal districts of Egypt were recognized in the older geographical arrangements, as follows: Lower Egypt, Bahri, or the northern part as far as the delta of the Nile. This portion contains the celebrated city of Alexandria, now with about 60,000 inhabitants. Then middle Egypt, Westani: this includes Cairo, the residence of the pasha, with 200,000. And last, upper Egypt, Said, the southern part,—the most important town is Siout, with 15,000 inhabitants. To the E. of the Nile valley, or Egypt proper, are situated the harbors of Suez and Cosseir. Between Egypt and Tripoli is situated the Libyan desert, and in that the oasis of Siwah, with the town of the same name. Barbary in its most extensive sense includes the whole coast of Africa, lying to the west of Egypt, about 560,000 square geographical miles, inhabited by from 12,000,000 to 15,000,000 people, principally Moors, Arabians (Bedouins), and Berbers, or Kabyles. Tripoli embraces an area of 144,000 square geographical miles, and has a population of 450,000. It has been a Turkish province since 1835. The capital of Tripoli has about 20,000 inhabitants. Dependencies of Tripoli are the oasis of Fezzan, 70,000 inhabitants, and Angila and the district of Barea. Tunis embraces from 48,000 to 64,000 square geographical miles, with about 2,000,000 inhabitants, and is subject to a bey, who is almost entirely independent of the Porte. The capital, Tunis, has 100,000 inhabitants. Other important towns are Kairwan, Gabes, Monastir, and Safar. Algiers embraces 67,200 square geographical miles, and has a population of 2,000,000—among them at least 180,000 Europeans. It has been a French colony since 1830, ruled by a military governor. The immediate territory of the French, which, besides the towns, includes only their immediate vicinity, is in 3 divisions of Algiers, Oran and Constantine—the capital is Algiers, with about 100,000 inhabitants. Next to that the most important towns are Constantine, Oran, Bona, Philippeville, Bongiah, Blidah, and Medeah. The empire of Fez and Morocco embraces 224,000 square geographical miles, and contains from 6,000,000 to 8,000,000 of inhabitants. These are composed mainly of Moors,

Arabs, and Amezirzhes—or descendants of the aboriginal inhabitants (divided into Berbers and Shilloos). There are also 5,000 Jews and 120,000 negroes. The empire is subject to an entire independent sultan, and is divided into the kingdoms of Fez and Morocco. The capital of Fez is the town of Fez, with 80,000 inhabitants. Other towns of some importance are Mekines, Tetnan, and Tangiers. The capital of Morocco is Morocco, with 80,000 inhabitants. Other towns are Tarudant and Mogadore. To them may be added the district of Tafflet. The coast towns of Outa, Peñon de Velez, and Alhucemas, belong to Spain.—We come now to the great desert of Sahara, that extensive African lowland which, with the exception of the lands already referred to, and Nubia, includes the whole of northern Africa, to the amount of about 1,280,000 square geographical miles. The western portion, termed Sahel, is the most desolate, the eastern including numerous oases. The most extensive of these are: in the east, the little oasis El Wah, only 90 miles from the Nile; the middle oasis, Takel; the great oasis, south of the first, with the town of El Karjeh; the oasis of Darfour the largest of all, with numerous inhabitants under a sultan. In the north the oasis Siwah, or of Jupiter Ammon, Angila, and Fezzan, with the town of Moorzook. The strip of land between the Atlas and the desert is termed Biledulgerid, or the land of dates. Notwithstanding the proverbial heat, which is almost insupportable by day, there is often great cold by night, owing to the excessive radiation promoted by the purity of the sky. Rain is nearly, though not entirely absent, in this desolate region. It appears as if when nature has poured her bounty over the adjoining regions in the south, and has little more left to bestow, she sends a few smart showers of rain to the desert, parched by the long prevalence of the perpendicular rays of the sun. The prevailing winds blow during 3 months from the west, and 9 months from the east. When the wind increases into a storm, it frequently raises the loose sand in such quantities that a layer of nearly equal portions of sand and air, and rising about 20 feet above the surface of the ground, divides the purer atmosphere from the solid earth. This sand, when agitated by whirlwinds, sometimes overwhelms caravans with destruction, and even when not fatal, involves them in the greatest confusion and danger. The natural products correspond with the physical features of the country. Vegetation and animal life exist only sparingly in the oases or valleys where springs occur, and where the soil is not utterly unfit to nourish certain plants. Among the few trees, the most important is the date-palm, which is peculiarly suited to the dryness of the climate. The down-palm is likewise a native of the same part, and seems entirely absent in western Sahara. Acacias are found in the extreme west towards Senegambia, furnishing the so-called gum-arabic. In many parts of the desert a thorny evergreen plant

occurs about 10 inches high; it is eagerly eaten by camels, and is almost the only plant that supplies them with food while traversing the desert. The cultivation of grains is but small, and limited to the western oasis of Tuat and others. There are but few specimens of wild animals in these wildernesses; lions and panthers are found only on its borders. Gazelles and antelopes are abundant; hares and foxes but scarce. Ostriches are very numerous, and vultures and ravens are also met with. The habitable portions of the Sahara are possessed by 3 different nations. In the extreme western portion are Moors and Arabs; they live in tents, which they remove from one place to another, and their residences consist of similar encampments, formed of from 20 to 100 such tents, each encampment constituting as it were a particular tribe. The boldest of these children of the desert are the Tuarika, who occupy the middle of the wilderness, where it is the widest. They are a very fine race of men, tall, straight, and handsome, and with an imposing air of independence. They live chiefly from the tribute they exact from all caravans traversing their country. They render themselves formidable to all their neighbors, with whom they are always in a state of enmity, making predatory incursions into their countries. The third division of Saharan people are the Tibboos, who inhabit the eastern portion, comprising one of the best parts of the desert. In some of their features they resemble the negroes. They are an agricultural and pastoral nation, living mostly in fixed abodes, and are in this respect greatly different from their western neighbors. The Tibboos are in part pagans, while the other inhabitants are Mohammedans. The commerce of the Sahara consists chiefly of gold, slaves, ivory, iron, and salt.—Nubia extends for more than 800 miles, in a direct line along the gulf of Arabia. The inhabitants are Nubians or Barabras in three branches, and negroes and Arabs. Their religion, however, is the same, Mohammedan. Since 1822, Nubia has been under the dominion of the pashas of Egypt. The southern part of Nubia is called Sennaar, which embraces an area of about 80,000 square geographical miles, and contains a population of 1,500,000. The capital of Sennaar is Sennaar. To the northward lies the land of Sehendi, and to the westward the oasis of Cordofan.—Abyssinia is to the south-east of Nubia. It is inhabited by Abyssinians, Shangallas, Gallas, Shihos, and Danakils. The prevailing religion is Coptic Christianity. Formerly, Abyssinia was a single state, governed by a Negus, but now it is divided into several states, which afford a nominal recognition of the Negus as chief. The largest of the states are Tigre, Amhara, and Shoa. To the eastward of Shoa lies the land of Harrar.—The western coast of Africa is divided into 3 portions, known as Senegambia, Upper Guinea, and Lower Guinea. These take in the coast from Sahara to Cape Negro; and they are inhabited by negroes of

various tribes. The first, Senegambia, is divided into a large number of states, in which the most numerous tribes are the Foola, the Mandingoes, the Jaloffs and Feloops, and Briafara. The French have settlements in St. Louis, Goree, and other towns. The English have settlements on St. James's Island, St. Mary, Macarthy, and Bulama, under the government of Sierra Leone. The Portuguese are at St. Cacheo, Farim, Geba, and the island of Bissao. North Guinea is divided from east to west into the district of Sierra Leone, the coast of Malaghetta, to which belongs the republic of Liberia, a colony of emancipated negroes from the southern portion of the United States. Also the Kroo, Sanguin, and other lands, besides the Ivory Coast and the Gold Coast, which are the best known parts of Guinea, and where there is the most powerful negro nation of that region, the Ashantees, who number between 1,000,000 and 2,000,000; their chief town is Kumassi. Then there is the Slave Coast with Dahomey and the chief town Abomey, and the coast of Benin, a peninsula, with the important negro kingdom of Benin. The most important European settlements of North Guinea are: Sierra Leone, to which the English take all slaves captured in slavers; Freetown; and on the Gold Coast the forts Apollonia, Dix Cove, Commenda, Cape Coast Castle, Anamboo, Winneba, and Prambran, with James's Castle and the negro town Accra. The French have factories, Grand Bassan on the Ivory Coast, and Assinie on the Gold Coast. The Netherlands have settlements at forts Antowina, Elmina, Tantam, Hollandia, Crevecoeur near Accra, Sebastian and St. Jago, all on the Gold Coast. The Danes are at forts Accra, Quita, Christianberg, Friedensburg, and other places on the Gold Coast, and Prinzenstein on the Slave Coast. South Guinea, which is separated from Upper Guinea by the Ambos highlands, is partly under the supremacy of the Portuguese. That government has 800,000 subjects there; it also contains the independent negro kingdoms of Loango, Congo, Angola, and Benguela.—We next come to Soodan, by which is to be understood an indefinite extent of country in the interior of middle Africa, bounded on the north by the Sahara, on the east by Darfoor, on the west by Senegambia and upper Guinea, and on the south by the inner highlands. The area of this section of country cannot be accurately stated, as it is but little known. The eastern part has not been explored. It is estimated at from 640,000 to 800,000 square geographical miles. The low northern part is known as Nigritia. The district of Haussa divides it into a western and eastern portion, of which the western contains the basin of the Niger, and the eastern that of lake Tchad. The most civilized of the inhabitants who are negroes are the Haussas. The principal kingdoms known are Bornoo, Haussa, Mandara, Yarriba, Borgoo, Gauro, Timbuctoo, Lower Bambarra, and Upper Bambarra. The higher portion of Soodan to the northward of North Guinea is called High Soo-

dan. The eastern coast of Africa is 8,680 statute miles in length, extending from Cape Guardafui to Delagoa bay. It is still, however, but very little known; the inhabitants are mostly negroes. To the north are found tribes of Arabians; the only European settlements are those of Portuguese. The subdivisions of the country from the north to the south are as follows: Ajan, Zanguebar, Mozambique, and the coast lands of Sena, Sofala, Sabia, and Inhambaro. The highlands of Africa, which it is thought include the whole of the southern portion, are almost entirely unknown. The inhabitants are negroes, amongst whom are usually distinguished four main stocks: the Shaggas, Gallas, Caffres, and Hottentots. The Bechuanas of Orange river belong to the Caffres; the Hottentots, among whom belong the Bosjesmans, dwell on the middle and lower Orange river, and some of the tribes have partially embraced Christianity. The cape land of Africa, by which is to be understood such of the southern portion as has been penetrated by European settlers, has an area amounting to from 128,000 to 160,000 square geographical miles. The area of the colony is about 112,000 square geographical miles; the number of inhabitants is estimated at from 150,000 to 160,000. This country was possessed by the Netherlands from the year 1600 until 1806, when it was conquered by the English, in whose hands it still remains. It is subject to a governor, and is divided into two provinces, the eastern and the western.—Owing to its position, shape, and the conformation of its soil, Africa is the hottest part of the world; and although about one-fourth of it lies within the temperate zone, it has from the influence of the other portion the climate of the whole; with the exception only of the northern declivity of the Atlas, which is cooler. In consequence of the trade winds which prevail over Africa, the eastern coast is cooler than the western. In the interior, so far as is known, hot days are followed by cool nights, sometimes even to the extent of frosts, a circumstance prejudicial to the health of the inhabitants. Still worse is the alternation of the hot and rainy seasons on the eastern and western coasts. Conditions that are exceedingly beneficial for vegetation, which, as soon as the rain, preceded by the most terrible heats, ceases, shows an indescribable luxuriance—then is the joyful season of hot Africa. But it does not long continue; the heat increases, the rivers dry up, and vegetation (except the small succulent plants) perishes until after another rainy season.—Of the waters of Africa, the river Nile is the oldest of historical rivers, and afforded the only means of subsistence to the earliest civilized people on earth. Its origin, however, is an enigma to this day. A strange mystery has enshrouded the sources of this, one of the mightiest rivers of the globe. Its three principal tributaries from the east have, each in succession, had claimed for them the distinction of being the main stream, but that stream remains still to be discovered. The At-

bara, the last of the tributaries of the Nile before it disembogues into the sea, was looked upon in early Christian ages as the head of the Nile; it rises in the Abyssinian provinces of Lasta and Samen, amid mountains attaining a height of 15,000 feet. Above the junction of the Astapas with the Bahr-el-abiad, the ancients seemed to have known nothing of the course of the Nile, except that it came from the west. In thus vaguely referring to the Keilak, our present knowledge of the course of the Bahr-el-abiad is derived from the 3 expeditions sent up between 1835 and 1841, by Mehemet Ali, and the explorations of Father Knoblecher at a later period. It is not unlikely that the great western arm of the Nile, the Keilak, is its principal branch.—Of the nations of Africa we may speak first of the Moors, whose name originated in the 16th century, when the Arabs of Africa invaded southern Europe, and were confounded with the ancient Moors of Mauritania. The name was then given, not only to all non-nomadic Arabs, but to all Mohammedans of India, little as they have in common with the Moors proper; it was applied particularly to the settled Arabs of western Africa, who in the course of time took possession of fixed abode among the Berbers, the aborigines of Mogrib. Gräberg de Hemsö, who observed these true Moors for a long time in different countries of Africa, describes them as rather slender, well formed, of medium size, and appearing stouter than they actually are, on account of their full dress. But when of an advanced age the men as well as women from an inactive mode of life become corpulent; their eyes and teeth are handsome; their complexion varies greatly owing to the different colors of the mothers, who are of various tribes. One of the peculiarities is, that the more the color approaches to black the handsomer and of more decided character are the men. The women color their eyelids and eyelashes with antimony, and paint their fingers and toes, faces, and other parts of their body. The dress of the Moors consists of a shirt with wide sleeves, and of very wide trousers of white linen, over which they wear the caftan, usually of a very bright color, with short sleeves buttoned at the wrist and fastened around the waist with a colored sash: over this they wear a cloak of colored cotton or silk after the manner of the Roman toga. Sometimes a garment of blue cloth with a cowl is added, or a light undervest, usually of a white cassimere; the covering for the head consists of a white cap; such as have made a pilgrimage to Mecca add a turban of white muslin, the feet are covered with yellow leather shoes or half boots. The cloak is worn also by the women; in fact, it is frequently their only article of dress, and often made of material so fine as to be almost transparent. Those in easier circumstances wear a wide chemise of fine linen embroidered at the bosom with gold, and over it an ample caftan usually of cloth, or velvet worked with gold. Strips of a silk

or gold-worked veil are wrapped around the head and fastened at the neck where its knots fall with the braided hair upon the girdle. Sometimes they add a ribbon ornamented with gold coins and pearls, with which they encompass the forehead. In the upper part of the ear they wear a small ring, in the lobe of the ear a larger one, both ornamented with costly stones. Around the neck they wear rows of gold and silver coins with jewels called tezra. On the wrists they wear thick gold or silver bracelets. These are also worn on the legs, those worn around the knee are called ruccus, while those worn lower down are called khelkal. Over the caftan is thrown a light linen garment which is fastened around the body either with a girdle of crimson velvet embroidered with gold, and with a gold or silver buckle, or simply with a twisted sash. They wear red slippers but no stockings. The lower classes and the poor wear, as their only garment, a sack of coarse linen called djelabia, with a hole at the top for the head, and holes at the sides for the arms, not unlike the poncho of the Mexicans. Among the Moors, as among all who profess the same religion, bathing is a religious act which must never be omitted, and with them the public baths are places of meeting for social conversation. Their usual and best article of food is the cooscasoo, which consists of a fine paste of coriander seed, meat, broth, butter, eggs, saffron, cayenne pepper, &c., and is eaten with the fingers out of a bowl. Coffee is seldom used, but tea is partaken of several times a day. Instead of tobacco they use a kind of hemp, or the seeds of a plant called kif. The same authority describes the disposition of the Moors as follows: "We, who ourselves lived and had intercourse for twelve years with the Moors of several Atlantic countries, and have attentively studied their disposition, can conscientiously declare that every thing mean and despicable in the extreme to be found in the human heart, constitutes the general disposition of these Africans; they are, and will be, for many years to come, the same barbarians they were in the days of Sallust and Procopius; fickle, faithless, lying, cruel, and incapable of being held in check by fear or acts of kindness. Their predominant passions are sensual love, revenge, ambition, and covetousness; the idea of kindness and sympathy is entirely foreign to them; haughty, harsh, and arrogant to their inferiors, they are servile and submissive toward their superiors, and to the powerful of the basest and most slavish deportment; their covetousness is incredible, and more than makes good the adage, 'a Moor would resign his eye in order to put in its place a gold coin.' They feign poverty while they are scraping together riches, and in addition, they are fanatical and hypocritical; detest all foreigners, persecute Christians, and oppress the Jews in the most unjust manner; especially do they hate the Turks, because they consider them heretics and propagandists, and the Roman

Catholics because they esteem them idolaters. When sustaining bodily chastisement, pain, or suffering, they generally display the cool indifference of savages. The females pass lives of entire seclusion, and like their husbands, believe that God created woman only for sensual pleasure and the propagation of the species."—The Abyssinians who inhabit the elevated country of eastern Africa, spring from the Cushites of Arabia, and are called Cush in the Bible, like the people from whom they are derived. Before the time of Moses, they passed the narrow arm of the Red sea, and took possession of the territory which afterwards constituted the kingdom of Tigre; the majority of the population are handsomely formed; they are of the Caucasian race, with the physiognomy of the nomads of Arabia. The face is oval, the nose finely sharpened, the mouth well proportioned, with lips well formed, sparkling eyes, well-set teeth, and hair somewhat curled and sometimes straight. They are of medium size. A second division of the inhabitants of Abyssinia have less sharpened and pointed and somewhat aquiline nose, thick lips, dull eyes with narrow apertures, and very crisply curled, thick, almost woolly hair. This division includes the inhabitants of the provinces of Hamases, and the other districts along the northern confines of Abyssinia. The third division, the Galla, including the Shoho, have unprepossessing features, the same as are frequently found among the inhabitants of the provinces of Tigre and among the soldiery of most other districts. Negro physiognomies occur only among the Shangalla slaves, imported from the west, and their cross-breed children. With the exception of those who are entirely black, the complexion of the remainder of the Abyssinians varies from bronze-yellow to dusky-blackish brown. Travellers speak of their moral condition as being quite as corrupt as that of the Moors, made up of all the vices known to the human heart, the Christian inhabitants being in every respect as bad as the others. They have no conception of the sanctity of the marriage tie; immorality pervades all orders of society, although there is a strict observance of apparent decorum; their only good qualities are a hospitality, protection, and security afforded to strangers. Abyssinia has no settled form of government; the strongest and most crafty holds the power until he is dispossessed by another. We have the authority of Rûp- pel for saying that the history of the last 60 years shows a complete political dissolution of the country, and relates merely to the various chieftains who have succeeded in obtaining unlimited power in the several provinces, supplanting their rivals by stratagem and boldness, and falling, in their turn, by the treachery of their confederates. The consequence has been continued civil wars and general impoverishment. Landed property has hardly any value, agriculture is almost entirely neglected, the rearing of cattle very sensibly decreased, and traffic often entire-

ly suspended. Most of the habitations are small, filthy, thatched oots, surrounded by high thorn hedges for the protection of the domestic animals at night. Daylight is only admitted through the door. Some of the Abyssinians still live in caverns, as was customary in ancient times. Their dress consists partly of skins and partly of cotton stuffs; short, wide trousers, and a cloth thrown around the shoulders, generally constitute the entire dress. The men of rank wear a shirt of white Indian stuff, with tight sleeves, and very fine colored silk embroidery, and over it several cotton robes. Their ornaments for the arms, neck, and feet, are of silver; red slippers are imported from Egypt, black ones are manufactured in the country; the women are enveloped to the chin, and the sleeves of their dresses fall down to the tips of their fingers. The weapons of the men are chiefly the shield and the lance, and a curved knife 16 inches in length and about 2 in breadth, which is placed in a cotton girdle upon the right side.—The Fezzanians inhabit the oasis of Fezzan, and differ much in complexion and physiognomy; they are probably a mixture of several nations. Those at the north are white, like the Arabs at Moorook; from that there is a transition to the darkness of mulattoes, and from that to the blackness of the Fezzanians who live to the southward, and who remind observers of the Tuarik branch of the Berbers. The inhabitants of the province of Ohati are thought by Horneman to be the main stock of the Fezzanians. They are of medium growth, short black hair, tolerably regular features, with nose less flattened than that of the negroes. The figure of the men is not handsome, the women are very ugly, and both sexes are destitute of vigor and courage. They are fond of music; and though they are naturally cheerful and hospitable, the oppression of the government has made them inhospitable, covetous, faithless, and malicious. They have adopted the Arabic language, which they speak with a rough, harsh, Mogrib dialect. They are nominally Mohammedans, but mingle all kinds of heathenish ideas with their religion. Their chief employment is commerce. A few handicrafts, agriculture, and horticulture, are pursued at Fezzan. Their dress consists of a coarse linen or cotton shirt, trousers of the same material, and sandals of camel's skin. In the street, a woollen covering is sometimes worn like a cloak, and some wear a turban and yellow slippers on Fridays. The women have the fronts of their chemises embroidered, and consider the head-dress, and their rings on their arms and feet, their chief ornaments. Their houses, which are built of bricks dried in the sun, are low and very uncomfortable.—The Bisherin live in the mountains along the Red sea, north of Abyssinia, east of the Barrabras, and north-west of Massawa, almost the whole distance up to Suez. They were a powerful nation during the middle ages, when they controlled the commerce of the whole world from both sides of the Red sea. Their color is very

dark brown, but their face is not of the negro type. They are rapacious and warlike, and always at enmity and war with each other. The opinion has long prevailed that the old Egyptian sprang from the African negro stock. It has been proved, however, that the inhabitants of Africa have belonged to three different races in all history. The negro stock predominates in the interior, or west, the Caffrarian occupies the south, and the Moors the north and west. The negro or Ethiopian race is divided as follows: Caffres, Foola, Mandingos, Fellatahs, Hamburas, Madagassees, negroes of central Africa, Hottentots, and Bushmen. The Vaussa negroes are a stock belonging to the Eycoes, who inhabit the southern part of the kingdom of Houssa, on both sides of the Quorra Niger. Most of the Guinea negroes exhibit all the characteristics of the negro race. Their skin is thick, like velvet to the touch, and secretes a perspiration of an unpleasant odor. The color is black, and the crisp, woolly hair, is generally of the same hue. But the stocks living between Cape Palmas and Cape Three Points on the Ivory Coast, as well as those of the country extending from the latter cape to the Rio Volta on the Gold Coast, have very little of the negro physiognomy; they have more of the Indian or Grecian style of features. The Hottentots, Barrow says, are well proportioned and straight; have forms rather delicate than muscular; their joints and limbs are very small; countenances ugly, but differing in this respect in different families. Some individuals possess very flat noses, others have them quite prominent. Their eyes are dark chestnut brown, long, with narrow openings, widely separated, with the inner angles rounded, as in the Chinese, to whom generally the Hottentots have much resemblance. The cheek-bones are high and prominent, and with a small pointed chin form almost a triangle; the teeth are white. The young women are well and pleasingly formed; the breasts are usually large and the bosom very full; but soon after the birth of the first child it becomes flabby, and in old age very pendulous; the abdomen swells out, and the hinder part is covered with a thick mass of pure fat.—The principal divisions of the inhabitants of Egypt are the Copts, Arabs, and Turks, saying nothing of the Jews and Europeans. The Turks constitute the smallest portion, but have preëminence as rulers. The Arabs are the most numerous, and are either farmers, artisans, or wanderers. The Copts are a medium size, are of dusky-yellowish brown complexion, black hair, depressed nose, thick lips, black, prominent, and dull eyes. They speak the Arabic language, and are sensible, prudent, grave, and persevering. Their religion is the Greek Catholic. The inhabitants of central Egypt are more of a brownish-yellow complexion. In the southern provinces they are of a dusky-bronze color, and towards Nubia are almost black; their face is mostly handsome; oval, moderately large, yet prominent eyes,

black and brilliant, lying deep in their sockets; the nose straight yet somewhat thick; mouth well formed, with rather thick lips; teeth exquisitely beautiful; beard usually black, curly, and rather thin; the dress is that invariably worn by Mohammedans. All the Egyptians shave off the hair of the head with the exception of a small tuft upon the crown. The women of the lower classes wear long trousers, and over these a white or blue chemise with long wide sleeves, a simple handkerchief being the only head-dress; they wear ornaments in the lobes of their ears, and sometimes in their noses, and envelope themselves in a large veil covering the figure and face except the eyes and a small portion of the forehead, which is much disfigured by black and blue markings. The dress of the women of distinction resembles that of the men, with the exception that it is much finer. In eating and drinking the Egyptians are temperate. Much attention is paid to cleanliness of person, especially by the women. As a nation, they are described as covetous, hypocritical, treacherous, thievish, cowardly, and lazy. Superstition and sensuality prevail everywhere. We find them in the earliest times through the whole extent of the valley of the Nile; and as the country has a peculiar secluded and uniform character, so we find the people to have led, from a remote epoch, a monotonously regulated and, as it were, petrified life. The hierarchy and the system of castes, made their influence felt in every department of human activity, and each employment was carried on by people born to it. We find among the Egyptians the art of writing in use, and brought to great perfection at a very early period. It consisted first of a monumental writing, the hieroglyphics, some of which have a phonetic value; then the hieratic writing, which appears to have arisen through an abbreviation of the hieroglyphics, in transferring them to paper; and the demotic, which is still further simplified, and approaches nearest to the nature of alphabetical writing. This last was used for legal documents, letters, and all the purposes of ordinary life. Through the knowledge obtained in recent times of these species of writing, and especially of the hieroglyphics, we have been able to determine the age of many monuments, which, as Egyptian art remains unchanged for thousands of years, could hardly have been done from their style. In Egyptian art the following periods are to be distinguished: First, before the Syro-Arabian invasion of the shepherd kings' 16 dynasties, at the end of which nothing escaped destruction but the pyramids of Memphis—a work of the 4th dynasty. Second, the period of the native princes, who, starting from the southern border of the kingdom, gradually regained possession of it; under Rhamses the Great (Sesostris, 1472 B. C.), this art reached its greatest perfection. The names Rhamses, Sesostris, Amenophis, Thutmosis, all belonging to the 18th dynasty, are found on numberless monuments, and also in lower Nubia; Thebes was then in the height of its splendor. Third,

Egypt under foreign dominion, first Persian, then Greek, and lastly Roman, which, however, produced no essential change in the manners and customs in the interior of the country. It was reserved for Christianity with its assaults to break up this mummy-like, dried up, and therefore imperishable Egyptian world. With respect to locality, the monuments and productions of Egyptian art may be divided into, first, the upper Nubian. Here was Meroe, where the dominion of the priesthood survived the longest (270 B. C.) Here are still found considerable ruins and remains of art, which, however, exhibit the Egyptian style only in its later degenerate stage. Second, the lower Nubian, which show an affinity to upper Egypt. They are mostly in the form of excavated structures, the Nile valley being in this portion too narrow to admit of large foundations. According to the hieroglyphic inscriptions they date from the flourishing period of Thebes, and their for the most part unfinished condition, shows that they belong to a transition period. Third, the upper Egyptian, comprising those of the region above Thebes, and of Thebes itself; all of which date from the 18th and 19th dynasties, and together exhibit one and the same powerful, and grandiose style. Fourth, the middle and lower Egyptian, which have been mostly destroyed, partly during the frequent civil wars, and partly in consequence of the rise of new and large cities in the neighborhood. In the oases, also, there are found some ancient remains. The Egyptians particularly excelled in sculpturing stone, and as the art of sculpture appeared, even among them, as the handmaid of architecture, and as the adorning of the works of the latter, it bears, so to speak, a thoroughly architectonic character. Their statues, made mostly of the hardest species of stone, are for the most part correct, and by the simple curves of the outlines, produce an imposing effect; but their approximation to geometrical forms, produces a want of life and warmth in the conception of the details. The parts of the body are formed after the material type, although based on certain rules of proportion. The forms of the sexes are well distinguished, but a definite character is nowhere exhibited in the images of the gods and kings. They are distinguished only by their attributes and grace. The forms of animals exhibited much more spirit and depth of observation than those of men. The blending together of the forms of several animals is often very happily executed, though sometimes the effect is rather cold. Rams occur most frequently, though generally with a lion's claws and tail; andro-sphinxes are lions with human heads; the largest is that near the pyramids of Gheezeh, which is 117 feet in length, and 40 feet high, hewn out of solid rock, and has in its breast between its paws the entrance to the great pyramid. The reliefs of the Egyptians are not as successful as their figures, their artists having striven to represent every member of the body as completely as possible. In addition

to the works of sculpture, as a department of Egyptian art their works in burnt clay are interesting. These exhibit many excellent productions, consisting partly of vessels, to which the so-called Canopuses belong, and partly of small figures coated with a colored enamel, and mostly very well designed. So, too, the well-known scarabæi, amulets worn on a string around the neck, and which are very often found between the bandages of mummies, frequently consist of burnt clay, although many are of carved stones. Sculptures in metal are rare. The Egyptians were able to carve beautifully in wood, although of that material there was no great abundance. The sarcophagi of the mummies exhibit many specimens of these branches of art.—The architecture of Egypt is so closely allied to its sculpture that a description or study of the one becomes, for the most part, a description or study of the other, as is shown in the very numerous temples, palaces, and pyramids. The style of architecture known as the Egyptian, originated in the northern districts of Ethiopia, and in Nubia, and was introduced to the lower districts of the river Nile by Egyptian colonists, who migrated from Meroe under the command of some priests, and settled below the last cataract. The temple of Jupiter Ammon, between Thebes and Thezzan, the obeliaks near Axoom, and others, are evidence of the correctness of this statement.—The Berbers, who call themselves the noble and free, are the descendants of the most ancient inhabitants of Mauritania, Numidia, and Libya; their territory extends from the high west bank of the Nile, and the oases running along the west side of Egypt to the coast of the Atlantic ocean; and from the shore of the Mediterranean sea, and the heights of the Atlas mountains, to the northern border of the great desert. They belong to the Semitic stock, but are divided into numerous tribes with different dialects. The Ethiopian stock live in the districts extending from the southern edge of the desert of Sahara to the Cape of Good Hope, thus inhabiting the whole of central and southern Africa. They exhibit many different shadings, as well in external forms as in habits. Prichard says the physical attributes among the African nations have an evident relation to their moral and social condition, and to the different degrees of barbarism and civilization in which they live. Tribes in which the negro type is developed in a very high degree, are uniformly in the lowest grade of human society; they are either ferocious savages, or stupid, sensual, and indolent creatures, scarcely elevated above animal life, as, for instance, the Papels, Bullons, and other nude hordes upon the coast of West Guinea, and many tribes on the Slave Coast and the bay of Benin, where the slave trade has been carried on to the greatest extent. Wherever the inhabitants have advanced in social condition, their physical character is found differing materially from the distinctly stamped negro type. The Ashantees, Soulimas, and Dahomans, serve

as instances of this. The negroes of Gooba, and Houssa, where a considerable degree of civilization has existed for a long time, are, perhaps, the handsomest race of true negroes upon the continent, rivalled only by the Jaleffes, who have been a comparatively civilized people since the time of the first discovery by the Portuguese. The religion of a large portion of the negroes is of the rudest conception. Monotheism has gained but little ground among them; about one-third have become converted to Mohammedanism. Islamism, though much mutilated, has been naturalized in the whole of central Africa; the only spot on which the Christian faith has planted a firm foot, is among the tribe of Bechuanas in South Africa.—In the animal kingdom, as has been said, Africa is rich in the number of its peculiar species of animals. The difficulties which have at all times opposed the progress of discovery in Africa, have prevented the acquirement of a knowledge of its zoology as satisfactorily as could be wished. Enough is known, however, to form a general idea of its productions, and to infer with a degree of accuracy their most prominent features and characters. Of the 800 different species of mammals which are known to be inhabitants of Africa, upwards of 250 are peculiar to that continent, and the neighboring island of Madagascar. Among the quadrupeds of burden, the most highly valued is the Arabian camel, now spread over all the northern and central parts of the continent; it is peculiarly adapted to the country, and is an indispensable requisite in crossing the long and arid deserts which cover so great a portion of the surface north of the equator. The camel, it has been supposed, is not indigenous in Africa, but there are no historical accounts of its introduction into that continent. Of horned cattle there are a great many different varieties, of which are the sanga or Galla ox of Abyssinia, with immense horns nearly 4 feet in length, and a kindred race in Bornoo, the horns of which measure upwards of 2 feet in circumference at the base, and yet scarcely weigh 2 pounds apiece. Of sheep the most remarkable varieties are those known as the broad-tailed, concerning which Shaw says their tails grow so fat and heavy that they are frequently obliged to be supported on little wheel carriages. This variety is common in Barbary, at the Cape of Good Hope, and in other parts of Africa. The edimain, a very tall variety with long legs, small tail, and drooping ears, is common in Egypt, Sennaar, and Nubia; both these breeds are covered with short coarse hair instead of wool, and their flesh is very inferior in quality to our mutton. Goats are more common than sheep; they subsist better on the dry herbs of the desert, yield a more abundant supply of milk, and are preferred for the table. The domestic cat is very rare in Africa, but dogs are numerous and of many different varieties. Domestic poultry is common, but of foreign introduction, with the exception of the Guinea hen.

Among the wild animals the most remarkable is the chimpanzee, which approaches more nearly to the human form than the orang-outang or the wild man of Borneo. Its arms are not so disproportionately long, its neck is not so short and deformed, nor are its shoulders so high; and it has altogether a much greater facility for standing and walking upright, and for using the anterior extremities as hands; its organization, however, determines its general habit of walking on all fours; and the hinder extremities are as in all the order marked by a thumb. Baboons are found only among the rocks and mountains of Africa. The more ferocious carnivorous animals are extremely numerous in all parts. The lion, the panther, and the leopard, lurk in the vicinity of the rivers and fountains, to surprise the different species of gazelles and antelopes, but unless pressed by hunger, rarely attack the inhabitants; though it is said the lion will often pursue the Hottentot in preference to all other prey. In some parts these animals are so numerous that the inhabitants dare not travel unless in large parties and well armed. Stories of lion hunts, and the excitement and dangers that attend them in those regions, have been read by every one. The elephant, which occupies the first rank among the wild hoofed quadrupeds of Africa, is known to be a distinct species from the Asiatic; its forehead is more convex, its ears larger, the markings of its molar teeth of a different form, and it has only 4 hoofs on the fore-feet, and 8 on the hind, whilst the Asiatic has 5 before and 4 behind. In magnitude, intelligence, and docility, it does not yield to its Asiatic congener. If we are to believe the statements of some travellers, it would appear that the African elephant sometimes attains the height of 17 or 18 feet. However this may be, it is at least certain that the tusks of ivory imported from the coast of Guinea are considerably larger than those obtained from India, often weighing from 150 to 180 pounds, whilst the latter rarely exceed 120 pounds. They inhabit the woody parts of Africa, S. of the Sahara, and live in large herds of 150 to 200 each. They are hunted by the natives for their tusks, and during such hunting expeditions the hunters live entirely upon the flesh of the slain animals. The rhinoceros is also found in Africa, frequenting the same localities as the elephant, and hunted as ardently by the people, though its hide and horns are the only parts of it that can be turned to account; shields and harness are made of its hide, the great thickness and durability of which render it appropriate. The hippopotamus is found in the large rivers and lakes of Africa, S. of the great desert, and is, in many parts, extremely common. It appears to have kept possession of the fresh water lakes and rivers, and to have inhabited the very same localities which it now occupies from the earliest ages. There, too, is found the wild boar and the zebra, and the fallow-deer, also the remarkable giraffe or camel.

opard, which is found from the banks of the Gariop to the southern borders of the great desert. There are also two or three wild species of buffalo that inhabit the woods and marshy grounds of the interior. Here also we have the lamantine, which frequents the mouths of the great rivers upon the Atlantic and Indian oceans, and feeds upon the aquatic plants that it can reach along the shores. It was this animal, which, from the pectoral situation of its mammae, and from its habit of raising itself half out of the water, especially when in the act of suckling its young, gave origin to the fable of the mermaid, by which name it is often mentioned. Of the ornithology of Africa but little need be said, for from the physical conformation of birds they are not so confined or limited in their geographical distribution as the quadrupeds. The most peculiar are the ostrich, remarkable for its enormous size and great strength and speed, and the bustard, many species of which inhabit the karroos and arid plains of Africa. One of the most remarkable and useful birds of prey peculiar to Africa is the secretary, which may be not improperly described as an eagle mounted on the long naked legs of a crane; this bird preys exclusively upon serpents, which it pursues on foot and destroys in large numbers. Among the smaller birds are many species remarkable for the gaudiness and brilliancy of their plumage, and the singularity of their manners and economy; among them are parrots and paroquets, the honeycuckoo, and the little bird called the republican. Lizards, serpents, and reptiles, abound in every part of Africa, and the crocodile inhabits all the large rivers of the tropical parts. Chameleons are also there, and insect tribes of many thousand different kinds. The locust has been, from time immemorial, the proverbial scourge of the whole continent; scorpions, scarce less to be dreaded than the noxious serpents, are everywhere abundant; and the zebub, or fly, one of the instruments employed by the Almighty to punish the Egyptians of old, is still the plague of the low and cultivated districts.—The commercial advantages of Africa in point of local situation, may well compare with any other quarter of the globe. Its proximity to the great oceans and their numberless islands, and its position with respect to the other continents, all declare its situation to be highly favorable to the interests of commerce. It lies in the bosom of the Atlantic, Southern, and Indian oceans. Asia and the East Indies stretch to the east of it, and are accessible either through the Indian ocean or from the Red sea through the straits of Babelmandeb. From the northern shores of Africa all the Mediterranean lies in view. The agricultural advantages are, or at least once were, if possible, greater than the commercial. It is possible, though not very probable, that the continent of Africa was once as deeply dotted with vegetation as South America; the continual action of an almost vertical sun for

many ages may have effected great changes in the nature of the soil. From late observations it appears that the sands of Africa have spread further N., and are making gradual encroachments on the fertile countries of Egypt and Barbary. The country abounds in precious metals, and in many valuable natural productions. It may be called the region of animal life, since there are more than twice the number of species of animals in it than in the other quarters of the globe. Egypt and Carthage were both in their turn great and powerful. Science first rose in Egypt; and Carthage held a very doubtful contest with Rome for universal empire. But whatever may have been its natural advantages, it now presents to the eye of the traveller one uniform, immense region of ignorance, vice, barbarity, and misery. If we enter that continent by the Isthmus of Suez, Egypt first receives us, still elevated by some faint glimmerings of civilization above the rude savage; the people have just knowledge enough to render more conspicuous their depravity; they exhibit an astonishing example of bad government, and of the corrupting tendency of corrupt morals. Proceeding through toward the source of the Nile among the mountains of Abyssinia, there is a change only from bad to worse, an advance toward that degradation of intellect which marks the mere savage. Down the eastern shores, along the coast of Zanguibar, the prospect as far as known to the traveller, is nearly the same, and up the western shores along the coast of Guinea is no better. From the Slave and Gold Coast, proceeding northward the country presents scenes of barbarity, wretchedness, and darkness.

AFRICAN ASSOCIATION, a society formed in London, in 1788, for the purpose of assisting men of enterprise in their efforts to penetrate the unexplored parts of Africa, with ultimate reference to the civilization of the natives. It consisted of 95 members, and its affairs were managed by a committee of 5 persons, of whom Sir Joseph Banks was one of the most active in promoting the ends of the society. After various unsuccessful expeditions undertaken through its action, it was united with the royal geographical society, in 1831.

AFRICAN COMPANY, was incorporated in 1754 by act of parliament, for the purpose of facilitating trade with Africa. It was bound to maintain all the British fortifications existing between Cape Blanco and the Cape of Good Hope, for which it was paid £13,000 yearly. Any merchant could become a member by the payment of 40 shillings. The company was forbidden to trade in its corporate character, to borrow money, or attempt to interpose any hindrance to trade, which might be freely engaged in by all its members. Its charter was taken away in 1821.

AFRICAN INSTITUTION, a society formed in London in 1807. Its design was to obtain correct knowledge of the products of Africa, of its commercial capabilities, and of the state of

the natives, with a view to the civilization of the country. Its founders proposed to make the people acquainted with the most valuable medical discoveries. They also desired to obtain a knowledge of the chief African tongues, and put them in writing. In consequence of the scantiness of its funds, the success of the society has hitherto been but inconsiderable.

AFRICANUS, **LEO**, a celebrated traveller, born at Granada, in Spain, of Moorish parents, about 1487, died about 1526. While he was still a child, his parents removed to Africa, and settled at Fez, then a magnificent Mohammedan city. At the age of 16, he accompanied his uncle on a mission to Timbuctoo, and remained there 4 years. At the expiration of this period, he set out on his travels, and in the course of a few years explored various parts of the kingdoms of Fez and Morocco, visiting their most important cities, mountains, and deserts, and closely observing the customs of the inhabitants. He also, during this period, journeyed among the wild Arab tribes of the desert, and studied the peculiarities of that singular people. In the year 1518, he visited the kingdoms of Telesman and Algiers, the latter of which was then governed by the famous Barbarossa. On his return from this journey, which extended to Tunis and the desert of Barca, he set out once more for the interior of Africa. After a perilous journey he reached Timbuctoo for the second time, and having remained there a while went southward as far as the city of Gago, 400 miles from Timbuctoo. Thence turning to the eastward, he traversed Bornoo and Nubia, and visited the ruins of Egyptian Thebes. From Egypt he travelled into Turkey, Persia, and other oriental countries, but no narrative of his adventures there remains. Returning by sea from Constantinople, he was captured by Christian corsairs, and carried to Rome in 1517. Here he was presented to Pope Leo X., who, perceiving his merit, bestowed upon him a handsome pension, had him instructed in the principles of the Christian church, and gave him his own name, Leo. From this time he resided chiefly at Rome, and having mastered the Italian language was made professor of Arabic. Here he wrote his famous description of Africa, first composed in Arabic, and afterwards translated into Italian. Ramusio asserts that he died at Rome; but Widmanstadt, a German orientalist of the 16th century, states that after the death of his patron he returned to Tunis, where he again embraced the Mohammedan faith. The merit of his great work on Africa has been universally acknowledged, and Ramusio remarks that no previous writer has given so accurate a description of that part of the world. The best Latin version is that of the Elzevirs, printed in 1632.

AFRICANUS, **SEXTUS JULIUS**, a Christian writer of the 3d century, supposed by some to have been born in Africa, by others to have been of African descent, but born in Palestine. About the year 223, he was despatched on a

mission to the emperor Heliogabalus to solicit the restoration of the city of Emmaus. He was successful, and it was rebuilt soon after under the name of Nicopolis. He composed a chronological work entitled *Pentabiblos*, commencing with the creation, and closing with the year 221 of the present era. He wrote a letter to Origen, in which he argues against the genuineness of the history of Susannah; it still exists, as well as a great portion of another to Aristides, explaining away the discrepancies in the genealogies of Christ in Matthew and Luke. Eusebius attributes to him a work called *Kestoi* (embroidered girdles), composed of selections from the productions of various writers, chiefly treatises on physics and mathematics.

AFRIKANER, **JONKER**, a formidable chief of the Namaquas, who inhabit a large extent of southern Africa, and compose a portion of the Hottentot race. The father of Jonker was Christian Afrikaner, whose people lived originally within the limits of Cape Colony, from which they were compelled to migrate in consequence of the death of a Dutch farmer at the hands of Christian's brother. They finally settled on the banks of the Orange river, and soon, by successful aggressions upon their neighbors, increased in power and importance. On the death of his father, who had been previously converted to Christianity, Jonker, in defiance of the claims of an elder brother, assumed the chieftainship, and by an energy of character rarely found among the race to which he belongs, and a vindictive ferocity remarkable even among savages notorious for malicious cruelty, he succeeded in making his tribe foremost among the Namaquas, as he himself was foremost in the tribe. The Damaras, who obtained by conquest the country which they inhabit, have been the principal objects of Jonker's relentless pursuit, and for many years he has been despoiling, enslaving, and destroying them, at one time seriously contemplating their entire extermination. One, and that not the most sanguinary among his raids upon the unfortunate Damaras, resulted in the destruction of 40 villages and the stealing of more than 10,000 cattle, an exploit which he seemed to regard as a mere trifle. He resides at a village called Eikhams, and his tribe numbers about 500 warriors, and possesses 2,000 slaves. Jonker's conduct and example have interposed the most serious obstacles between the purposes of the missionaries and their fulfilment.

AFSHARS, a Persian tribe, of foreign origin, who claim to be descendants of the Toorkomans. They are comprised under two divisions, Shamloo and Kirkloo, and reside for the most part in towns, of which Abiverd and Helat are the principal. The tribe is said to occupy altogether 20,000 houses.

AFT, a nautical term, the opposite of afore, is applied to that part of the ship near the stern. It is not used as a preposition.

AFZELIUS, the name of a Swedish family, celebrated for their learning. **I. ADAM**, born at

Larf in West Gothland, Oct. 8, 1750, died Jan. 26, 1837. He was Linnæus's last pupil, and was teacher of the oriental tongues and of botany in the university at Upsal. In 1792 he went as naturalist to the English colony at Sierra Leone in Africa, where he remained two years. In 1796 he was secretary of legation at London, in 1799 was again teacher at Upsal, where in 1812 he received a professorship. II. JOHAN, brother of the former, born in 1753, died May 20, 1837. In 1784 he was made professor of chemistry in the university at Upsal. III. PERHAR, a brother of both the former, born in 1760, died Dec. 2, 1839. In 1801 he was made professor of medicine at Upsal, in 1812 was created physician in ordinary to the king, and in 1816 received a title of nobility. IV. ANDERS ERIC, a relative of the three former, born April 25, 1779. In 1818 he was teacher of jurisprudence at Abo. In 1831 he was banished by the Russian government on account of his political sentiments; but in 1835 received permission to reside in Willmanstrand in Finland, and afterwards at Riga. V. ARVID AUG., born May 6, 1785. In 1821 he was clergyman at Enköping, and attained celebrity by his poetical writings and researches in the ancient literature of the north. He published several volumes of old Swedish ballads, beside several original poems in the ancient tongue of the country.

AGA, signifying literally a great man or lord, the name of a Turkish dignity. The aga of the janizaries was the commandant of that corps. The title is also given to wealthy men of leisu. It is likewise used in Tartary, as a term of respect.

AGADEZ, the capital of Air or Asben, the newly discovered sultanate of central Africa, "a town which by mere accident has not attracted as much interest in Europe as her sister town Timbuctoo." It is the residence of a large merchant class, who speculate in grain and negro millet. There is a meat market which is kept clean by a flock of vultures, who domesticate themselves there like tame pigeons for the sake of the offal. Agadez contains the palace of the sultan, Abd el Kaderi. The mode of buying and selling at Agadez is very peculiar; the price is fixed neither in dollars nor in shells, but in negro millet. The vegetable market contained only cucumbers and molukhia (*corchorus olitorius*). A third market is the trinket market. Beads, necklaces, sandals, small boxes for carrying charms, small leather reticules, plates of copper, a donkey saddle, and a camel saddle, were here exposed for sale on the occasion of the visit of European travellers. The present number of inhabited houses is about 700, and the population about 7,000. All the houses except the palace, the mosques, and 50 or 55 superior dwellings, are 1 story. From 250 to 300 boys learn a little reading and writing in 5 or 6 schools scattered over the town. The state prison of the sultan is a terrible dungeon bristling with swords and spears, upon which rebellious vas-

sals are thrown. The great mosque, with its high square tower called Mesallejé, is the most conspicuous building in the town. This rises to the height of some 90 feet above the roof of the mosque. It measures at its summit where it tapers off but 8 feet. The interior is lighted by 7 openings at each side. It is built entirely of clay, and was erected in 1844. There are 9 other mosques in the city, of which only 3 are of a superior class. The revenue of the sultan of Agadez consists in the presents he receives on his accession, in a contribution of one bullock's hide from each family, in a more considerable tax levied upon the servile portion of the population, and in a toll of 10 *mithkals* imposed upon every camel-load of foreign merchandise which enters Agadez. His title is Amanokal Imakoren in Tuarik, Kokoy Bere in Songhay, and Barba-n-Serki, in the Hausa tongue. These 3 languages are spoken here, and the Songhay spoken at Agadez is the same speech as that which is used in the streets of distant Timbuctoo. The situation of the city, on an elevated plateau, cannot but be healthy for a European, as the few waterpools of small dimensions are incapable of infecting the air. Marmol, in his *Description dell' Africa*, says that Agadez was founded 160 years before the time when he wrote (1460, A. D.). The Arab Baba Ahmed, in his *Tarikh e Sudan*, informs us that it was conquered by the Songhay Haj Mohammed Askia in 1516 of our era, and the 5 Berber tribes were then expelled. Leo Africanus mentions the town as being in a very flourishing condition, full of foreign merchants and slaves, and states that the king paid a tribute of 150,000 ducats to the king of Timbuctoo. (See Richardson's "Notes of a Mission to Central Africa," London, 1853, and Barth's "Travels in Central Africa," London, 1857.)

AGADIR, the southernmost part of Morocco, is a fortified town on the Atlantic, in the province of Soos, 23 miles S. E. from Cape Ghir, in lat. 30° 26' 35" N. long. 9° 35' 56" E. The town has a population of 600, a large and secure harbor, and some trade with Marseilles.

AGALEGAS, a little island in the Indian ocean, about 485 miles N. N. W. of the northern point of Madagascar, the northerly end lying in lat. 10° 21' 30" S. long. 56° 38' E. Its length is 11 miles, and its width about 1 mile.

AGALMATOLITE, a soft felspar which the Chinese carve into images.

AGAMA, the appellation given to a body of troops, in Macedonia, nearly equal to the Roman legion.

AGAMEMNON, king of Mycenæ, commanded the combined forces of Greece at the siege of Troy. He married Clytemnestra, the sister of Helen, whose abduction by Paris led to the war. The Grecian fleet being detained at Aulis on its way to Troy by unfavorable weather, the priest Calchas declared that the gods must be propitiated by the sacrifice of his daughter Iphigenia, who had offended Diana by killing her favorite stag. To this her father unwillingly

assented; but she was saved by Diana. The quarrel between Agamemnon and Achilles forms the most interesting feature in the history of the Trojan war. He was murdered by his wife, as he was putting on his shirt after a bath, she having formed an adulterous connection during his absence at Troy.

AGAMENTIOUS, MOUNT, an important landmark for sailors, in York county, Maine. It is about 4 miles from the Atlantic coast, and 673 feet above the sea level.

AGAMI (*peophia crepitans*), a bird of tropical America, also termed the gold-breasted trumpeter. It has been classed among the cranes, but subsequently among the pheasants. By Temminck it is placed the first genus in the order *alectorides*. Its body is about the size of the pheasant, to which it bears some resemblance in its plumage; but it is much higher on its legs, which resemble those of the *grallatores*, or wading birds, being naked far above the knee. It has also a long neck, and in all respects, at first sight, has the appearance of a water-fowl; but, notwithstanding its formation and seeming connection with that class of birds, it never visits fens, or water-margins, but frequents the uplands and dry and arid mountains. Its breast is of a beautiful iridescent green and gold, in which, as in the bare space of scarlet skin which surrounds its eye, it resembles the pheasant. Its tail, however, is short, and partially covered by the loose silky plumes of its light-colored scapularies. It is easily domesticated, and becomes singularly attached to its master, whom it will follow about like a dog. It has the power of uttering a remarkable ventriloquous cry, whence its name of trumpeter, which is performed, with the bill closed, by aid of a peculiar conformation of the larynx. The agami, like the rest of the *alectorides*, makes no nest, but deposits its eggs, which are of a light green color, to the number of 10 up to 16, in a hollow place scratched at the foot of a tree. The down remains very long on the young bird, and then changes into long silky plumes, very close like fur.

AGANIPPÆ, a fountain of Boeotia, near Mount Helicon, emptying its contents into the river Permessus. The Muses derive hence their name Aganippides.

AGAPÆ (feasts of love), originally simple meals, derived, in common with the Lord's Supper, from the Jewish passover. The early Christians held the agapæ before the sacrament. It was probably at these agapæ that the irregularities which Paul mentions and rebukes (1 Cor. xi.) occurred, and not at the more solemn ceremony of the sacrament. In the 2d century, the Supper of the Lord began to be celebrated alone, and owing to an increasing reverence for the elements, less frequently. The agapæ were irregularly kept up, and in some instances with the extravagances which Paul rebukes. These extravagances, together with the suspicions of the Roman government in regard to the agapæ, brought them into gradual disuse. They have

been revived by the Moravians and the Methodists, under the name of "Love Feasts."

AGAPEMONE, or **ABODE OF LOVE** (Gr. *αγάπη*, love, and *μονή*, abode), the name of a religious institute in England, inhabited by a number of persons of both sexes, under the designation of the "family of love." The place was formerly occupied by a Roman Catholic convent, and is in the centre of a rich valley at Charlinch, near Spaxton, in the shire of Somerset, about 9 miles from the beautiful and flourishing town of Taunton. It was founded in 1846, almost contemporaneously with the first organization of the family of love. Travellers visiting it (and during its early years it was an object of great curiosity) usually posted from Taunton, and, on reaching the hill of Charlinch, came in sight of a long file of buildings, of a most spacious and elegant character, surrounded by a wall even higher than those which usually enclose noblemen's demesnes in England. In the centre of these buildings, on a pleasant little plot, stood a Gothic cottage, in which resided the chief of the sect or family, the Rev. Henry Prince, or, as some of his disciples called him, "God Incarnate." On the right of this was the banqueting-hall, formerly the convent chapel, the gable of which was surmounted by a lion rampant, flag and staff; and on a scroll were emblazoned the words, "Hail, holy love." On the extreme right were dwelling-houses for the brethren, and conservatories enclosing the lawns and pleasure-grounds, and on the left were another dwelling-house, the stables, coach-house, and a picturesque aviary filled with birds of varied song and plumage. The family live in a style of most refined pleasure. The cuisine is admirable, the "God Incarnate" taking especial pleasure in culinary delights. The "turn-out" in the afternoon, too, would put Rotten row, or Fifth avenue, to the blush in their most glittering hours, consisting of a graceful barouche drawn by four thoroughbred grays, preceded by outriders and bloodhounds, and accompanied by a mounted escort. Thus dashingly "the family of love" was wont to take the air. The number of persons who occupied this charming abode in the summer of 1849 was about 60 (we believe they are now fewer), some married and others unmarried, the two classes being about equal in numbers. There were children also in the establishment, but in its peculiar phraseology, this term was understood to mean the unmarried, for the youngest of them was described as being about 24 years of age, and the oldest of the tender age of 40. The brethren comprise several clergymen, four at least, beside the chief, who were formerly connected with the church of England; a medical man who attends the family professionally; an attorney who manages the legal business; a civil engineer; a farmer, &c. All the members of the family were persons of substance, though some acquired their property by marriage. Thus, without care, in a beautiful spot, amid sound of music, delicious cookery,

and all those appliances which to the sensualist make even nature more delightful, they lived at their ease in much enjoyment, and mocked at the religious communities outside for their seriousness and their cares. They rode out on gallant horses, they followed the hounds with keen delight, played at all manner of manly sports within their own grounds, and took especial joy in a game peculiar to England, called "hockey," which they played on Sundays to the dis-edification of their neighbors around. They have a considerable sum of money now in bank of England stock, and the beautiful farm on which they reside, and which is cultivated with skill, is theirs in fee. Their property is in common, managed by their chief; and they take their meals in common. They have converted the chapel into a banqueting house, and substitute feasting and enjoyment for fasting and prayer. "If God be not life, happiness, and love," said one of the brethren, "then we do not know what God is." The relations between the sexes are not of a grossly sensual character, as might be inferred from the title of the sect. They partake much more of sentiment than passion, to which the rather advanced age of most of the female "children" is an antidote. The relations are entirely governed by attractions. Members of the family forming an attachment enter upon matrimonial unions while the attraction lasts or until a new one supersedes it, but one partner at a time is all that is allowed to any one. Latterly, it is said a stricter kind of discipline has been introduced. The ladies have been obliged by the chief, to lay aside caps and cut off their hair, which is to be kept close. The men too are cropped, and are ordered to shave close. It is said, also, that one of the "children" of the family having ventured to take a few extra lessons in love without the walls, was seized by force and carried back to the Agapemone. Not relishing this treatment, or perhaps relishing too much the taste of forbidden pleasure outside, he made his escape, and has since carried pistols to protect himself from the love of his family friends. Though Mr. Prince and some of his disciples have gone about making converts, and have endeavored to sow their doctrines of love, especially in the sterile hearts of ladies of what is termed a certain age, and of large fortunes in their own right, the sect seems to have no well-defined dogmas. They profess to be Trinitarians, and to hold to the Apostles' Creed; and in their original separation from the church of England, were actuated by objections to the discipline rather than the fundamental principles of that communion. They now declare that they do all things for the glory of God, and "that both in eating, drinking, and indulging love, they glorify him." They say the day of grace is past and the day of judgment come. They adopt the philosophical tenet that each action has its own irrevocable consequences, which constitute its judgment as well as its punishment or reward. They say they act as

God tells them to act, and receive his promptings through their own feelings. They renounce prayers; they sing the praises of the Lord, sometimes in the open air and sometimes in most unintelligible gibberish. They make no difference between Sunday and any other day. A curious trial, which elicited most of these facts, took place in the year 1849 at London. It was the case of Nottridge *vs.* Prince, and sprung out of the seduction of three sisters into the family of love. It appeared that immediately on their conversion, they proceeded to the Agapemone, and the next day married three of the children. The brethren who took the sisters, also pocketed their fortunes of £8,000 each. A fourth sister was also so fascinated that she settled her fortune on Mr. Prince. Indeed, whether by accident or a providential dispensation, it is a singular circumstance that all the converts to the family have been possessed of considerable wealth, a circumstance which would lead suspicious natures to infer that the "God Incarnate" had a keen eye for money. Mr. Prince, previous to the formation of the family, was the curate of Charlinch, passing rich on some £40 a year, so that in a worldly sense the conversion has been to him a decided improvement. We should add that he is a slight and rather short and ungainly person, of about 50, with glasses, and a pedantic and not very pleasant countenance. The family was first called the "Lampeter family," and at the start was composed almost exclusively of members of Mr. Prince's congregation at Charlinch.

AGAPETÆ, in the primitive church, a name given to certain virgins and widows, who, from pious motives, devoted their time to waiting upon ecclesiastics. In the early days of the church women were made deaconesses, and resided with the ministers, sharing their duties. For some time the relation was maintained pure and blameless; but it resulted in immorality, and councils were summoned to put an end to it.

AGAPETUS, a deacon of the church at Constantinople in the reign of Justinian. He dedicated to this emperor his work on the "Duties of Princes," commonly known as the "Charta Regia," a book of moral, religious, and political maxims, which entitles him to rank among the best writers of his age. An English translation of it by Thomas Paynell was printed at London in 1550.

AGAPETUS I., elected pope of Rome June 585, died April 22, 586. The Gothic king Theodatus, who was at that time in possession of the throne of Italy, sent him to Constantinople to endeavor to persuade Justinian to abandon his purpose of invading Italy. He did not succeed in attaining the object of his mission, and died either at Constantinople or immediately after his return to Rome.—AGAPETUS II., elected pope 946, died near the end of 956, or the beginning of 956. He espoused the cause of the emperor Otho against Berenger, and was succeeded by John XII.

AGAR, JEAN ANTOINE MICHEL, comte de Mosbourg, born near Cahors, department of Lot, in France, Dec. 19, 1771, died at Paris Nov. 8, 1844. He practised for some time as an advocate in his native department, and in the year IX. of the republic was elected deputy to the convention from Cahors. Having served the state well for some years in several stations to which he was appointed, he received in 1804 the cross of an officer in the legion of honor, and in 1806, Murat, who had been made grand-duke of Berg, a new duchy formed by Napoleon on the Rhine, appointed him his minister of finance. This post he filled in a very creditable manner, and as a reward for his services, received the estate of Mosbourg with the title of count, and the hand of a niece of Murat in marriage. When, in 1808, Murat became king of Naples, he again appointed the count de Mosbourg his minister of finance. In this post, also, he showed himself a man of great ability, and by his administration excited the admiration of all. The constitution granted to the Neapolitans by Murat, and which was published at about the time when the latter was compelled to fly from Naples, is of his composition. After the fall of Murat, the count de Mosbourg lived for a time in England and then returned to France. In 1816, his estates of Mosbourg, which had been sequestered by the Prussian government, were restored to him, but he continued to reside at Paris, where he interested himself in political affairs. In 1830, he was elected member of the chamber of deputies from the department of the Seine, and after the events of July of that year was reelected from the department of Lot. In 1837 he was elevated to the peerage.

AGAR, PEDRO, a Spanish politician, of the early part of the present century. He died in Spain about 1840. He was a native of Spanish America, and was on that account named one of the first regency which was appointed by the cortes to govern Spain after the forced abdication of Charles IV. in 1808. When the triumvirate was abolished, Agar continued to be a member of the council of state, but when the regency was reestablished, he again formed part of it. Although very moderate and conservative in his patriotism, he was not considered sufficiently royalist for the restored legitimate monarch in 1814, and he was banished to Betanzos in Galicia. When the patriot movement of 1820 took place he was again drawn from obscurity, and placed at the head of the provincial junta of Galicia. After the king had sworn to the constitution he resigned his office, and retired again into the seclusion of private life.

AGARD, ARTHUR, an English antiquary and theologian, born 1540 at Foston, in Derbyshire, died in London, Aug. 21, 1615. In 1570 he was named archivist of the exchequer, and devoted himself to antiquarian research. He formed a society of antiquaries under the patronage of Queen Elizabeth, and contributed a large number of memoirs which were collected after his

death by Hearne, and published under the title, "Collection of Curious Discourses, written by Eminent Antiquaries upon several Heads in English Antiquities." It treats largely of the organization and manners of England in the middle ages. He bequeathed all his manuscripts to his friend Robert Cotton, and was buried in Westminster abbey, where the monument erected to his memory may still be seen.

AGARDH, KARL ADOLF, naturalist, bishop of Carlstad, in Sweden, born at Båstad, Jan. 28, 1785, studied at the university in Lund, in 1807, where he was made teacher of mathematics. He soon devoted himself, however, to his favorite study of natural history, and entered with great zeal into the investigation of cryptogamia. He published a number of works on natural history, especially his *Systema Algarum*, beside essays on mathematics, education, and political economy. In 1812 he was appointed professor of botany and rural economy in the university at Lund. In 1816 he took religious orders, and in 1834 he was made bishop of Carlstad.

AGARIO, the mushroom excrescence, often called touchwood, which grows upon the trunks of trees. When young it is a soft substance like velvet, but afterwards becomes hard and ligneous. It is found of many varieties, some of which are prescribed in the pharmacopœias of Europe, and others possess poisonous qualities. The white agaric, or *boletus laricia*, which grows upon the European larch, has a sweetish, very bitter taste, and when administered in small doses is said to act powerfully as a cathartic. It contains 72 parts of resinous matter, 26 of fungin, and 2 of a bitter principle. Benzoic acid, and some salts, are also met with in it. Agaric of the oak, or *boletus igniarius*, is the common fungus met with on the oak tree. It has the shape of a horse's hoof, and is often 6 to 10 inches in diameter. This substance consists of layers of short tubular fibres of tough texture, and dusky brown color. It is of complex composition, containing a very small proportion of resin, a small quantity of nitrogenous matter, chloride of potassium, sulphate of lime, and extractive. Its ashes also afford oxide of iron, phosphate of lime, and magnesia. The inner part is cut into thin slices, and beaten until it becomes soft and pliable, and is then used for the same purposes as lint. Agaric steeped in a solution of saltpetre becomes very easy of ignition, and is used for tinder. That imported to this country from Europe, is known by the name of spunk. The French spunk, called *amadou*, is very nicely prepared, having the appearance of soft buckskin, of a brownish color. It is said to be obtained from different species of the *boletus*.—**AGARIO** is the generic name for MUSHROOM, which see.

AGARIO MINERAL, a marly earth, akin in color and texture to the vegetable of that name.

AGASIAS, a Greek sculptor of Ephesus, a son of Dosithens, whose age is not known. The statue now at Rome, called the "Borghese

Fighter," is the work of this sculptor. It represents a warrior contending with a mounted combatant.

AGASSIZ, LOUIS JOHN RUDOLPH, was born May 28, 1807. He is of French descent, his family having been among the Huguenots who were driven from France by the revocation of the edict of Nantes. They took refuge in the Pays de Vaud. For 6 generations the lineal ancestors of Agassiz have been clergymen. His father was pastor of St. Imier, a Protestant parish in the ancient bishopric of Basel. His mother, who still lives in a vigorous and honored age, was Mademoiselle Rose Mayor, the daughter of a physician in the Canton de Vaud. The father, having left St. Imier on account of the severity of the climate, and taken charge of the parish of Mottier in the valley between the lake of Neuchatel and the lake of Morat, Louis was born here. His early education was conducted under the eye of his mother, a woman of uncommon intelligence and talent. At the age of 11, he was sent with a younger brother to the gymnasium of Bienne, a small town in the canton of Berne, where several years were passed in the study of ancient and modern languages, diversified by the amusements of fishing and collecting insects. In the mean time his father had removed from Mottier to the little town of Orbe, at the foot of the Jura; here, during the vacations, the student's attention was first drawn to the natural sciences, under the influence of a young clergyman named Fivaz, who is now himself in the United States. His studies were first directed to plants. Having studied 4 years at Bienne, Louis entered the college (L'Academie) of Lausanne, where he passed 2 years. Having chosen the profession of medicine, he went to Zurich in 1824, where he remained 2 years in the medical school. From this school he removed to the university of Heidelberg, where he continued his medical studies, devoting himself chiefly to anatomy and physiology under Tiedemann, zoology under Leuckart, and botany under Bischoff. He remained here until the autumn of 1827. At this time he entered the university of Munich, which had recently been reorganized. Among the eminent men assembled there, were Oken, the zoologist; Martius, the botanist; Schelling, the philosopher; Döllinger, the founder of modern physiology, not to mention the great teachers in other departments. With all these distinguished men, Agassiz formed intimate friendships. He studied the organization of plants and their geographical distribution, with Martius; he lived in the house of Döllinger, with whom he studied the embryonic development of animals; he was intimate with Wagler; with Oken he discussed the principles of classification; with Fuchs he studied mineralogy; and for 4 successive years he attended all the lectures of Schelling on philosophy. While at the university of Munich, Agassiz was the leading spirit in a select circle of young men, who met to discuss scientific subjects. This society

was called the little academy, and so interesting were the lectures and discussions which were held there, that the professors were glad to take part in them. When Don Pedro of Brazil, married an Austrian princess, the Austrian and Bavarian governments seized the opportunity of sending to that country a scientific exploring expedition. The naturalists of the expedition were Martius, Spix, Natterer, and Pohl. Agassiz, still a student, had already published a few special papers. On the return of the scientific corps, Martius occupied himself with the publication of his great work on Brazil. The zoological portion of the work was intrusted to Spix; but he had not completed the work at the time of his death. Martius immediately selected young Agassiz to elaborate the ichthyological part of the work, upon which very little had been done. It was published in Latin, in a folio volume; and the manner in which Agassiz accomplished the task, placed him at once in the foremost rank of naturalists. These studies and labors diverted Agassiz from the profession of medicine, to which he had been destined by his parents. The allowance he had hitherto received from his father, on which, moderate as it was, he had not only subsisted, but had employed a distinguished young artist, Dinkel, was now withdrawn. Agassiz then applied to Cotta, whose reputation as a publisher, and a man of the most enlarged views, is world-wide. This distinguished man, struck by the value of the materials Agassiz had collected for a "Natural History of the Fresh-water Fishes of Europe," and no doubt impressed with the genius of the young naturalist, enabled him by a timely supply of funds, to go on with and complete the work. This was his second great undertaking. Meantime he presented himself as a candidate for the degree of doctor of philosophy, which he took at Erlangen, after passing a very severe examination with distinction. In the same year he took at Munich the degree of doctor in medicine, on which occasion he maintained the superiority of woman, in a Latin dissertation upon the thesis, *femina humana superior mari*. The great work on the fresh-water fishes was advancing. After the double examination for degrees, Agassiz visited Vienna, where he prosecuted his studies in the museum, and devoted himself especially to the study of the fishes of the Danube. While in that city he became acquainted with the leading naturalists, and particularly Fitzinger. While studying living fishes, his attention was drawn to the fossil species, found in the fresh-water deposits of Oeningen and of Glaris in Switzerland, and of Solenhofen in Bavaria. Immediately after the completion of the work on the fishes of Brazil, he commenced his researches upon the fossil fishes, and devoted 7 years to the study before commencing the publication. This was continued through 10 years, and was brought to a close in 1844. In the course of his preparation for this work, Agassiz visited the principal museums of Europe, accompanied by a skilful artist;

and so great was the interest felt universally in these researches, and the confidence which the author inspired, that he was allowed to take with him and keep for examination and comparison, the most valuable specimens of more than 80 public and private museums, some of which he was permitted to retain from 5 to 10 years, in order the better to compare and describe them. Agassiz was enabled to visit Paris and to prosecute his researches in the collections of that capital, by a most disinterested act on the part of a clergyman, and friend of his father, Mr. Christinat, who at a later period visited Agassiz in America, and passed some years at his house. This gentleman, at the time alluded to, had just come into possession of a small sum of money, which he voluntarily offered in aid of his young friend's pursuits. Agassiz at once became acquainted with Humboldt, who was then residing in Paris, and with Cuvier, the eminent naturalist, who had just commenced his work on fishes. The drawings exhibited to him by Agassiz so delighted the illustrious philosopher, that he offered to relinquish to him all the materials he had himself collected; and from that time to his death he cherished a warm friendship for the young Swiss naturalist, and received him in his family on the most intimate terms. In his investigations of the fresh-water fishes, the rivers and lakes of Europe were thoroughly explored, in order to compare those of the different water basins, especially the Rhine, the Rhone, and the Danube, with their tributaries. These investigations had mostly been made while Agassiz was still a student in Heidelberg and Munich, during the vacations, when he travelled on foot over the whole of southern Germany and Switzerland. Some time after the death of Cuvier, 1832, Agassiz returned to Switzerland, on the invitation of citizens of Neuchâtel, where preparations were making to reorganize the college. He received the appointment of professor of natural history in that establishment the same year, and immediately began to make preparations for the publication of the work on which he had been occupied so long. He also extended his researches to other departments of zoology. In 1833 he was enabled, by the liberality of Humboldt, who had been his devoted friend since the commencement of their acquaintance in Paris, to begin the publication of the great work on the fossil fishes. This is in 5 volumes, with a folio atlas, containing about 400 plates. About 1,000 species are described and figured in the natural size, with the colors of their beds, and there are short indications of about 700 more. The discovery and description of so many new species, led to the recognition of new types, and an entirely new classification, based chiefly on the characters of importance in the fossils. We have not space to give the details of the new classification. But we may remark that the great generalizations to which these researches led, have stood the test of time, and have been strengthened and extended by the

researches of a quarter of a century. The geological results of these investigations were remarkable. The relative ages of the formations in which the fossil fishes were found, were more clearly established by comparisons of their structures. Moreover, the fossil species differ from those now living, and differ in different stages of the same formation, as well as in different formations, leading to the conclusion that our globe has been peopled by a series of creative acts; and, as peculiar species occur in certain regions and not elsewhere, that these creations were not only successive but local, each having assigned to it a natural limit, man alone, and the animals associated with him, forming the exceptions to this last general law. From this general survey Agassiz drew several very important conclusions, respecting the relation of the Creator to the universe. The existence of a superior intelligence, whose power alone could establish and sustain such an order of things, he considers to have been established by rigid demonstration, and on a truly scientific foundation. He shows that species do not insensibly pass into each other, but each has its appointed period, and is not connected, except in the order of time, with its predecessor. "An invisible thread, in all ages, runs through this immense diversity, exhibiting as a general result the fact, that there is a continual progress in development ending in man, the 4 classes of vertebrates presenting the intermediate steps, and the invertebrates the constant accessory accompaniment. Have we not here the manifestation of a mind as powerful as prolific? the acts of an intelligence as sublime as provident? the marks of goodness as infinite as wise? the most palpable demonstration of the existence of a personal God, author of all things, ruler of the universe, and dispenser of all good? This, at least, is what I read in the works of creation." Such is the appropriate tone of the closing part of the chapter on classification. Professor Agassiz visited England several times, and was everywhere received with respect and enthusiasm. The universities of Edinburgh and Dublin conferred on him the degree of LL.D., and the corporations enrolled him among their citizens. The most eminent persons gladly welcomed him. He was the guest of the late Sir Robert Peel, and Lord Egerton, afterwards Lord Ellesmere, and Sir Philip Egerton, honored him with a friendship which continues to the present day. Of the eminent naturalists, Buckland, Owen, and Sir Roderic Murchison, should be enumerated as among his friends. In 1834 his "*Prodromus of the Echinoderms*" appeared, which was soon followed by his monographs on that class of animals, in the preparation of which he was aided by Professor Valentin and Mr. Desor. To facilitate the study of the echini, Professor Agassiz caused plaster-casts of his collection to be made, numbering over 500 species. Monographs on living and fossil shells and upon the tertiary shells considered as identical with the living species, were also pub-

lished by him about the same time. During this period he continued to collect materials for his "History of the Fresh-water Fishes." He formed a lithographic establishment at Neuchâtel, where the plates for the atlas of this work were executed, and the prints struck off under his own eye. The great expense of the work, however, exhausted his pecuniary resources, and he not only found it impossible to continue it on the original plan, but it entailed upon him a heavy debt, which cost him the labors of many subsequent years to pay off. In the elaboration of some portions of the subject he was assisted by Mr. Vogt, then distinguished for his zeal and attainments in zoology, since less favorably known as a political agitator, and finally as a thorough-going atheist. The publication of the "Fresh-water Fishes," in 1839-40, was followed by the *Nomenclator Zoologicus*, containing an enumeration of all the genera in the animal kingdom, with the etymology of their names—the names of those who first proposed them, the date of their publications, &c. This work was founded upon registers, in which Agassiz entered the names of the animals as they occurred in his studies. They were then methodically arranged, the nomenclature of each class being submitted to the revision of naturalists distinguished for their investigations in each special branch. This was accompanied by another extensive and important work, the *Bibliotheca Zoologica et Geologica*, containing a list of the authors mentioned in the former, with notices of their works. This work, published at the expense of the Ray society in England, has appeared since the author's residence in the United States, with emendations and additions by H. Strickland, and Sir W. Jardine, in 4 large octavo volumes. From the year 1836 to 1845, Agassiz spent his summer vacations among the Alps, chiefly engaged in the study of the glaciers and the geological phenomena they produce. The indications of their greater extension in a former period, and the traces they have left upon the surface of the earth, were carefully followed through the countries adjoining Switzerland, as well as England, Scotland, and Ireland. Before him, Saussure, Venetz, Charpentier, and others, had written upon the glaciers, and the distribution of bowlders over the valley of Switzerland. Saussure's theory of their distribution referred it to the action of water. The idea of glacial agency in transporting bowlders appears to have originated among the chamois-hunters, who had noticed the fact that every year huge masses of rock were moved by them from their original position. This idea was adopted by Venetz, and extended by Charpentier, who explained the distribution of the bowlders throughout the valley of Switzerland, and on the slopes of the Jura, by the extension of glaciers beyond their present limits in a former period. In 1836, Agassiz visited Charpentier, and accompanied him to the glacier of the Diablerets, where he saw the actual transportation of the bowlders by the glacier, and the rounding and polishing of the

rocks at its sides. These observations removed his former doubts. It was obvious to him at a glance, that such an accumulation of ice as would extend the glaciers from the Alps to the Jura, covering the valley of Switzerland to the depth of more than 2,500 feet, would require a depression of temperature which must have been widely felt, producing similar phenomena over other portions of the earth's surface; that the north of Europe must have been at the same time covered with a similar sheet of ice. Agassiz first announced his glacial theory in a discourse delivered before the Helvetic society in 1837; but in order to investigate the facts more thoroughly, he first visited most of the Alpine glaciers, and then established his head-quarters on the glacier of the Aar, where for eight consecutive summers he continued the researches which formed so large a part of his scientific labors in Europe. These researches are embodied in 2 works. The first, entitled *Études sur les Glaciers*, published in 1840, with plates, contains a description of the glacial phenomena and a statement of the author's views of their former extent. The second, published at Paris in 1847, under the title of *Système Glaciaire*, contains an account of the investigations made during his last five visits, 1841-1845, upon the mode of progress of the glaciers, and is accompanied with plates and a topographical chart on a scale of 1:100,000. An excellent and graphic account of these visits and researches among the glaciers, is given in a little work by his companion, Mr. Edward Desor, *Excursions et séjours de M. Agassiz et de ses compagnons de voyage dans les glaciers et les hautes régions des Alpes*. It has been also translated into German. His description of the ascent of the Jungfrau in 1841 is the most curious and interesting.—Since his residence in the United States, Professor Agassiz has occupied himself with investigations of the distribution of the bowlders and the smooth surface of beds of rock over the North American continent, which he also attributes to the action of glaciers, extending from the north. The results of these investigations are chiefly recorded in the volume containing an account of an excursion to Lake Superior. Special and technical as most of these works appear, an attentive student will perceive that each was undertaken with reference to some general question, and made a test of the value and soundness of some general principle. The papers and works upon echinoderms aimed at a revision of the classification of these animals, and a better appreciation of their structural differences from the other types. The monographs upon shells, living and fossil, were prepared with the view of testing the range of distribution of species in past ages, and the limits of their specific characters. The researches on fossil fishes, thus far the greatest and most important work of the author, are intended to show the relations of living and fossil species, and their embryonic development in one of the most extensive class-

es of the animal kingdom, the existence of which upon earth may be traced back to the earliest periods in which animal life was called into being. The investigations upon the glaciers were called forth by a desire to connect the history of the physical changes our globe has undergone with the phenomena exhibited by the development of the organic kingdom. Everywhere we discover in his works a tendency to the most extensive generalizations, while in every instance the knowledge of the facts, a careful study of the most minute relations of his subjects, has been his constant aim in all his investigations. Mr. Agassiz found time, amidst his numerous labors, to superintend a German translation of "Buckland's Geology," and to revise the French and German translations of "Sowerby's Mineral Conchology," made by Mr. Desor.—From 1846, the biography of Mr. Agassiz belongs to the scientific history of the United States. In the autumn of that year he arrived in Boston, from Paris. The object of his visit to the United States was, in the first place, to make himself familiar with the natural history and geology of this country, in fulfillment of a mission suggested to the king of Prussia by the Baron Alexander von Humboldt, and in the second place to meet an invitation from Mr. John A. Lowell to deliver a course of lectures in Boston. Eighteen months or two years had been allotted to the first task, and ample means were provided by the Prussian government for that purpose. Soon after his arrival in Boston, Professor Agassiz delivered his first course of Lowell lectures, consisting of a general review of the animal kingdom. These lectures were listened to with interest unabated to the end, by audiences of 1,500 to 2,000 hearers, embracing all that was most cultivated in science and letters, in the society of Boston and the vicinity. Immediately afterward by special request he delivered another course upon the glaciers and the phenomena connected with their former greater extension. Having completed these labors, he visited New York, Philadelphia, and Charleston, with the view of comparing the animals of the northern shores with those of the more southern latitudes of this continent. On his return to the N. early in the summer of 1847, he met with Professor Alexander Dallas Bache, the superintendent of the United States coast survey. This event had an important influence upon the subsequent career of Professor Agassiz; for Mr. Bache invited him to avail himself of the facilities presented by the operations of the coast survey, for the further prosecution of his researches. The offer was so liberal and of such vast importance, in a scientific point of view, that Agassiz could hardly credit his good fortune; and upon being assured that he might, without difficulty, visit at will every point of the coast in the well-equipped coast survey vessels, from Maine to Texas, and along the whole western coast, he exclaimed that this would decide him to remain to the end of his days in the

United States. He immediately seized the opportunity of spending part of the summer of 1847 on board the Bibb, commanded by Capt. C. H. Davis, on the coast of Nantucket and Martha's Vineyard. The immediate result of this, and a second cruise along the same coast, was several papers upon the medusæ of Massachusetts, and upon a coral found near Holmes's Hole. In the same summer, he visited, in company with Mr. John A. Lowell, Niagara Falls and the White Mountains. During the next three winters he delivered courses of lectures before the Lowell institute, upon comparative embryology and upon the successive development of the animal kingdom, some of which he repeated in New York, Philadelphia, and Charleston, S. C. At the close of the year 1847, Mr. Abbot Lawrence founded the scientific school in Cambridge, and a professorship of zoology and geology was offered Mr. Agassiz, which he accepted, after having obtained from his government an honorable discharge of his obligations to them. The minister of foreign affairs, in granting his request, employed these words: "We well know that wherever you take up your abode, your time will be employed for the best advantage of science." In the spring of 1848 Agassiz entered upon his duties in Cambridge, and at the close of the academic year he started with 12 of his pupils upon a scientific exploration of the shores of Lake Superior, where they passed the summer months. The results of this journey are contained in the volume entitled "Lake Superior," the narrative part of which was written by Mr. Elliot Cabot, together with the reports of the lectures the professor delivered at the close of each day. Dr. J. Le Conte contributed the account of the coleoptera. In 1848, in conjunction with Dr. A. A. Gould, he published "Principles of Zoology," for the use of schools and colleges. From that period Professor Agassiz has devoted his time alternately to teaching and making original investigations. Beside his university lectures he has delivered, in the winters, courses of lectures in different parts of the country, while exploring its natural history. In these excursions he has been constantly accompanied by assistants, so that the collections he has made are the most complete extant, and embrace the whole range of the animal kingdom. In this manner he has traversed the whole extent of the country from Lake Superior to the Gulf of Mexico, and from the Atlantic coast to the valley of the Mississippi, delivering courses of lectures in Savannah, Mobile, New Orleans, St. Louis, Cincinnati, and many other places besides those already mentioned. In 1850, he spent the winter upon the reef of Florida, in the service of the coast survey, with the view of ascertaining the mode of growth and the direction of the increase of the reef. A preliminary report of this survey is contained in the coast survey reports. In the following summer, he explored the state of New York with Professor James

Hall, chiefly with the view of making himself thoroughly acquainted with the important geological results of the survey of that state, and afterward visited again the most important localities, with his pupila. The Helderberga, and Niagara Falls and that interesting vicinity were always most attractive points of study. In 1852, Professor Agassiz accepted a professorship of comparative anatomy in the medical college of Charleston, S. C., which he retained for two successive winters, during which he made a thorough study of the marine animals of that coast, extending his excursion to Georgia and North Carolina; but finding the climate injurious to his constitution, he resigned the situation, and returned to reside permanently at the North.—Since the year 1855, the attention of Professor Agassiz has been chiefly devoted to the arrangement of the immense amount of materials collected in these explorations. To form an adequate idea of the extent of the collections he has brought together, it ought to be known that besides his own efforts, and the assistance he has derived from the young men accompanying him everywhere, he has been largely assisted by the friends he has made in every state, during his excursions. These contributions were continued long after he left the different stations where he temporarily established himself. These collections embrace also the western coast; for though he has not yet had an opportunity of visiting that region, he has regularly received large contributions from California through the kindness of his brother-in-law, Mr. Thomas G. Cary, Jr., who for 6 years has collected for him extensively there. The results of all these explorations and investigations are now to be published in the work entitled "Contributions to the Natural History of the United States." Two volumes out of ten of this extensive work have already passed through the press. The subscription list extends to the unexampled number of 2,500 names, in all parts of the United States; a magnificent support of a purely scientific undertaking, executed on a grand and expensive scale; a tribute to the worth of science, and an appreciation of the labors of a great original investigator, such as has never before been exhibited to the world.—Professor Agassiz's eminence as a scientific man was early recognized in Europe. In 1836, he was elected into the academy of sciences in Paris, and the royal society of London, and soon after received similar honors from all the other great learned societies in Europe and America. From the academy of sciences in Paris he has received the Monthyon prize for experimental physiology, and the Cuvier prize; the Wollaston medal from the geological society of London, and the medal of merit from the king of Prussia. The labors of Agassiz have, by no means, been limited to the works enumerated in the present notice. He has been a frequent and copious contributor to the leading scientific journals of Europe and America. He has made numerous communications to the learned

societies, of which he is an active member. In the United States, his activity has been most beneficial in the American scientific association, the American academy of arts and sciences, the Boston natural history society, the proceedings and transactions of all of which have been constantly enriched from his boundless resources. Agassiz has recently completed his fiftieth year. He is a man of great physical vigor, and his constitution has passed unharmed through his gigantic labors. Many years more of fruitful activity may reasonably be expected. His influence upon the scientific development of the United States has been profound and far-reaching. He has called into energetic action the minds of a large body of young men of science, who are laboring in every field of investigation with the enthusiasm he has inspired in the methods he has taught, and with the noble spirit which has always animated the master.

AGATE, called by the Greeks and Latins *Αχαρς* and *Achates* from a river in Sicily, now the Dirillo, in the Val di Noto, near which it was found. It is one of the numerous modifications in which silica presents itself nearly in a state of purity. Agate, onyx, chalcedony, amethyst, carnelian, sard, chrysoprase, and many others are but varieties, differing only in external form and appearance from each other, of the one family, quartz. When other ingredients, as alumina or oxide of iron, are found associated with the silica, it appears that their presence is never in any fixed proportion, and is therefore regarded as accidental. Agates are distinguished from the other varieties by the veins of different shades of color, which traverse the stone in parallel, concentric layers, often so thin as to number 50 or more in an inch. When these stripes alternate, an opaque band with one transparent, the stone is called onyx, from a fancied resemblance to the alternating lines upon the finger-nail, from the Greek *ονυξ*. The veins of the agate are, no doubt, produced by successive deposition of one layer of silicious matter upon another, which was introduced in a sublimated or soluble form into the cavities of the rocks, where the agates are now found. These rocks are mostly amygdaloids, the cavities of which are filled by a variety of minerals. As the rock disintegrates, or wears away by the action of atmospheric agencies, the hard nodules of agate drop out, and are then found upon the surface, or, as is frequently the case, strewn along a sea-beach, or in the beds of mountain streams. Externally they are rough, and exhibit no appearance of their beautiful veined structure, which is exposed on breaking them, and still more perfectly after polishing. The largest nodules seldom exceed a foot in diameter. Various processes are adopted for increasing the lustre, and heightening or darkening the colors of agates. They are boiled in oil, or kept in warm honey, and then dropped into sulphuric acid. The absorbed carbonaceous matter becomes charred and blackened by the acid, and the white stripes, impen-

etrate to the oil, appear clearer and brighter by the contrast. Agates are thus made to assume the onyx character, which is desired by the lapidary for the production of cameos and intaglios, in imitation of the antique sculptured gems. In these the figures, whether in relief or intaglio, are of a different color from the ground. Digestion for a few weeks in hydrochloric acid, kept at a moderate heat, gives a beautiful clear yellow color to the streaks that were before a dirty brown. Stones of a reddish hue are greatly improved in brilliancy of color by first thoroughly drying them for weeks in ovens, then dipping in sulphuric acid, heating to full red heat, and afterwards slowly cooling. The changes that take place in both these processes are upon the oxide of iron, which is the coloring matter. They may suggest other modes of producing other analogous effects. Though the varieties of agate are mostly very common minerals in this country, as well as in the old world, those localities only are of interest which have long been famous for their production; and which still furnish all the agates required by commerce. In the natural state the stones possess little value. This is given to them by the work put upon them, which from their extreme hardness, is very laborious, and in the sculptured gems requires the greatest patience and skill. Such operations are not yet introduced into the United States, and the agates, found everywhere accompanying the trap rocks, meet no demand except from the specimen hunters. The principal works for cutting and polishing agates are at Oberstein, a small town not far from Mentz, in north Germany. Here are numerous water-mills running the coarse stones for grinding down the surface of the agates, and the wheels of soft wood, on which they are polished with the powder of tripoli, found in the neighborhood. They are made into cups, seals, rings, handles for swords, knives and forks, small mortars for grinding very hard substances used by chemists, and into a variety of trinkets. The lines of agates sometimes take forms resembling men and other natural objects. Many of these, however, are such remarkable likenesses, that they must be regarded as exceedingly ingenious works of art. One in the British museum presents a likeness of the poet Chaucer; another in the church of St. Mark in Venice represents a king's head with a diadem. De Boot, in his treatise, *De Gemmis*, describes one which represents the figure of a bishop with his mitre, placed in the centre of a perfect circle. By turning the stone a little another figure appears, and turned still further the figures of a man and woman are seen. Pliny mentions one, belonging to Pyrrhus, in which were pictured the nine Muses, with their proper attributes, and Apollo in the middle of the figure playing on the harp. The most famous of the ancient onyx-cameos is the Mantuan vase at Brunswick. It is of brown color, shaped like a cream-pot, about 7 inches high and $2\frac{1}{2}$ broad. The raised figures upon the outside in white and yellow

groups represent Ceres and Triptolemus in search of Proserpine. In the Museo Borbonico is an onyx, representing on one side the head of Medusa, and on the other the apotheosis of Ptolemy; also another, measuring 11 inches by 9, representing the apotheosis of Augustus. This is supposed to be the largest specimen of the kind in existence.—Agate is also the name of an instrument used by gold wire drawers—so called from the agate in the middle of it, which forms its principal part.

AGATHA, *Str.*, a lady of Palermo, A. D. 252, martyred by Quintilian, the proconsul of Sicily, in the persecution of Decius, because she would not perform idolatrous worship, nor submit to his impure desires.

AGATHARCHIDES, a Greek geographical writer, a native of Cnidos in Asia Minor. He lived at the time of Ptolemy VI. Philometor, king of Egypt (B. C. 181–145). Of his numerous works, fragments of a description of the Erythraean sea alone remain. He was the first writer who made mention of the camelopard. His remarks on the mode of hunting elephants and on the inhabitants of the Red sea coasts are curious.

AGATHARCHUS, an Athenian artist said to have invented scene-painting, and to have painted a scene for a tragedy of *Æschylus*. Scene-painting was not generally used until the time of Sophocles.

AGATHERMUS, the author of an epitome of geography in Greek, who lived in the 3d century after Christ. The few literary remains of him extant may be consulted in "Hudson's Minor Geographers."

AGATHIAS, surnamed the scholar, on account of his extensive legal knowledge, was born in Myrina, in Asia Minor, and lived in the 6th century. He received his early education at Alexandria, and in 554 went to Constantinople where he won renown as a poet and historian. Of his writings, about 90 poems are still extant, and a history of the government of Justinian, in five books, which was intended for a continuation of Procopius. It was first published in 1594, and afterward with Niebuhr's amendments in 1828.

AGATHO, a tragic and comic poet of Athens, praised by Plato for his worth and beauty. His first tragedy gained the prize, and he was crowned about the 4th year of the 90th Olympiad. With the exception of a few quotations, his works have perished.

AGATHOCLEA, a courtesan of Alexandria, in Egypt, died 204 B. C. Ptolemy Philopator, king of Egypt, fell in love with her, and made way with his own wife in order to be able to marry her. She gained complete ascendancy over him and amassed great wealth. When he died she wished to murder the young heir of the Ptolemies, aged 5 years; but the boy escaped and threw himself upon the protection of the citizens of Alexandria, who rose in arms, stormed the palace, and murdered Agathoclea and her mother.

AGATHOCLES, a Syracusan adventurer and

military despot, the principal events of whose life range between the years 330 and 289 B. C. He was the son of a potter, and in early life worked at his father's trade, then became a leader of banditti, afterward a private soldier under Damas, the general of Agrigentum, a Sicilian town. Damas made him a chiliarch or commander of a thousand men. On the death of Damas, Agathocles married his widow, and thereby became one of the wealthiest citizens of Syracuse. Possessing a certain gift of popular eloquence in addition to his wealth, he easily obtained an ascendancy in the democratic party of Syracuse. He was first driven into exile by the aristocratic party, and was recalled when the democracy once more came into power. He was suspected of aiming at absolute power, by the democracy, and was again obliged to go into exile, but was soon recalled under a pledge that he would respect the constitution. On this occasion his mercenaries and the Syracusan mob massacred 4,000 respectable citizens, and caused the flight of 6,000 more. He now became autocrat of Syracuse in the interest of the democracy. Debts were abolished, the property of the rich was confiscated and distributed among the people, and he might have established his family on the Syracusan throne, had not an insatiable desire of foreign conquest possessed him. He aimed to drive the Carthaginians out of Sicily, and annex the whole island to the state of Syracuse. He was defeated by them (309 B. C.), and shut up in Syracuse on the land side. The sea being open to him, he carried the war into Africa, burnt his ships on landing, and obtained many successes over the Carthaginian troops and cities. Taking advantage of the absence of Agathocles, the subject allies of Syracuse in Sicily revolted, headed by the powerful city of Agrigentum. Agathocles hurried home to look after these domestic difficulties, like Bonaparte from Egypt, leaving his army behind him. The revolt was headed by Deinocrates, a Syracusan Greek. Without achieving any thing decisive in Sicily, Agathocles returned to Africa. He found his troops in Africa mutinous from want of pay. His eloquence saved him. Being defeated by the Carthaginians, he and his sons, who commanded in his absence, fled to the coast, leaving the army to look out for itself. The sons were caught by the troops and massacred; they then made terms with the Carthaginians. Agathocles, however, escaped to Sicily, and found Deinocrates and the revolted cities very strong. He therefore made peace with the Carthaginians, and turned his whole energies against the revolt. These he defeated, and butchered 7,000 of them after they had laid down their arms on promise of amnesty. He took Deinocrates into his service. Like his cotemporary Pyrrhus, of Epirus, and so many other warriors before and since, he could not rest quiet, and undertook an expedition against the Bruttii in Italy. He laid the Lipari islands under contribution, made him-

self master of Crotona, on the peninsula, and contemplated raising Sicily to a great naval power. He had advanced far towards this end when he died, 289 B. C., at the age of 73.

AGATHODÆMON, a map-maker of Alexandria, supposed by some to have been the author of the maps accompanying the geography of Claudius Ptolemæus. It is more probable, however, that he only altered and improved them at a later period.

AGATHON, a tragic poet of Athens, a contemporary and friend of Euripides. He won his first dramatic triumph in the year 416 B. C. Aristophanes ridicules him for his affectations, and brings him on the stage in a woman's dress. Plato and Aristotle speak well of his talents, but the latter remarks the mild, humane spirit of his tragedies as a sign that the vigor of the ancient drama was departing. He went with Euripides to the Macedonian court in 407, and fixed his abode in the palace of King Archelaus. The dinner which Agathon gave to celebrate his victory was made by Plato the ground-work of his Symposium. He died about 400 B. C., at the age of 47. Of his writings, a few fragments only are extant. They may be found in Didot's *Fragmenta Tragicorum Græcorum*.

AGAVE, a genus of plants of the order *amaryllidacea*. They are known as American aloes. The plant produces a circle of stiff, erect, fleshy leaves, growing on the top of a short woody trunk, bearing flowers in a long, terminal, woody spire.—Of this plant there are several species, but of these one only merits especial notice. The AGAVE AMERICANA, American aloe, has a short cylindrical stem, terminating in a circular cluster of hard, fleshy, spiny, sharp-pointed bluish-green leaves, each of which leaves continues to exist for many years, so that but few have withered when the plant has arrived at its maturity. It is a popular error, that this only occurs at the expiration of a hundred years, when the tree flowers, and again lies dormant, so far as its efflorescence is concerned, for another century, and again produces its centennial floral tribute. This, it need hardly be said, entirely a fallacy. The American aloe varies, according to the region in which it grows, in the period of its coming to maturity from 10 to 70 years. In hot climates, otherwise favorable to its rapid development, it grows quickly, and early attains its perfect growth. In colder countries, where it is cultivated as an exotic, and is raised under unfavorable circumstances and in an uncongenial climate, it often requires the full period vulgarly assigned to it, before it has attained its maturity. So soon as it does so, it sends forth a stem 40 feet in height, which puts out numerous branches, forming a cylindrical pyramid of perfect symmetry, each crowned with a cluster of greenish-yellow flowers, which continue in perfect bloom during a period of several months in succession. The natural country of the American aloe

is the whole intertropical region of America, in which it flourishes from the sandy plains on the level of the sea, to the table lands of the mountains, at a height of 9,000 to 10,000 feet. From these regions it has been transported to almost every temperate region. In England, the United States, and France, it is a tender green-house plant, but in Spain, Italy, Sicily, and the Barbary states, it is perfectly naturalized, and gives to those beautiful countries a picture of tropical vegetation, mingled with the foliage and scenery of temperate Europe. The American aloe is applied to many uses by the natives of the lands in which it grows. From its sap, drawn from incisions in its stem, is made *pulque*, a fermented liquor highly esteemed by the Mexicans, and from that, again, is distilled an ardent and not disagreeable, although singularly deleterious spirit known as *vino merca*. A coarse sort of thread is made from the fibres of the leaves, known as the petal flax. The dried flower stems constitute a thatch perfectly impervious and proof against weather, while from an extract of the leaves, balls are manufactured, which can be made to lather with water like soap, and from the centre of the stem, split longitudinally, a substitute is obtained for a hone or razor strop, which, owing to the particles of silica which form one of its constituents, has the property of speedily bringing steel to a fine edge. In one sense, and in one only, is it true that the American aloe flowers but once in a hundred years. For this plant, like some of the ephemeral insects, whose whole business appears to be, once to procreate their species and then to die, no sooner has it flowered—at whatever period of its existence that fact may occur—and thus discharged its duty of regeneration, than it at once withers and dies, like the phoenix, that “secular bird of ages,” which never lived to look upon his offspring and successor.

AGDE, a city in France, department of Herault, founded by the Greeks. It lies a short distance from the Mediterranean, on the left bank of the river Herault, into which the Languedoc canal flows at this point. It is the seat of considerable trade with Italy, Spain, and Africa. Several foreign consuls are established in this city. Alaric, the king of the Goths, held a council here in 506. Pop. 8,300.

AGE. This word is used to denote any particular period in the finite cycle of life allotted by nature to organic beings, such as man, animals, and plants, or to humanity in its collective life and history, to nations in their rise and fall, to the globe in its geological development, and the concomitant successions of various types of animal and vegetable life upon its surface. The age of the world has been variously computed by geologists, but nothing positive is known of the real length of time allotted to each period, so strongly marked by changes in the structure of its crust, and in the forms of animals and plants which have left fossil traces of their existence. Many periods

of inorganic change, and numerous mutations of animal and vegetable forms of life, are known to have occurred upon our globe, before the slightest trace of man appears upon its crust; and hence it is inferred that human life, compared with the inferior forms of animal and vegetable life, is of a very recent date. The age of the world, then, has two distinct bearings, one referring to the origin and growth of the earth in its cosmological and geological existence, the other to the origin and history of man and of society upon its surface. According to the Bible, the age of the world, since the creation of man, is about 6,000 years, but the traditions of oriental nations, such as the Chinese, and the Hindoos, record a longer period, and give a more ancient date to the history and origin of the human race. Memorial history, however, as far as it can be traced by monuments and written records in the most progressive nations of antiquity, corroborates the Bible, rather than the statements and traditions of the less advanced eastern nations.—Certain periods, remarkable for some particular development in the life and progress of the race, or of a nation, are distinguished by particular names, such as the golden age, the silver age, the copper or the brazen age, and the iron age of heathen mythology; the Augustan age of the Roman empire, the Elizabethan age of English history, and the age of steam and iron in the progress of our own time.—“The age of man is three score years and ten,” we are told in the Bible. This, of course, means the average duration of man's natural life. It may, however, be cut short by accident or by disease, and often is prolonged to twice the average, or more. Many cases are on record of men who have attained the age of 100, and some 120, 130, 140, 150, 160, 170, or even as much as 185, the age of a Hungarian peasant, Petrach Czartan, who was born in 1587 and died in 1772.—The life of man has been divided into 7 ages, by the poet Shakespeare, and into 4, or 5, or 6, or 7, by men of science. Some make 4 distinct periods only, such as infancy, youth, maturity, decline; others follow more closely each physiological transition, and apply the terms infancy, childhood, boyhood or girlhood, adolescence, virility, maturity, decline, and old age or second childhood. The most natural divisions are those which first distinguish the ascending, the culminating, and the declining periods of life. Each of these may be further subdivided according to physiological changes which mark the transitions from one period to another. Infancy, childhood, and boyhood or girlhood, mark the first stage of ascending progress from birth to puberty; youth, adolescence, and manhood or womanhood, mark the second stage of ascent in the growth and evolution of the powers of life; virility may be applied to the culminating period, and the descending stages of maturity and decline might well be subdivided into lesser and marked periods of transition,

as are the two ascending stages. Infancy applies to the first two years of life, during which the first complete set of teeth is developed; childhood to the age between 2 and 7 or 8, when the first teeth are shed, and a new set, more complete, replaces them; boyhood and girlhood, from 7 to 14 or 15, the average time of puberty, which forms a marked transition, closing the first general phase of ascending progress. Here youth, properly defined, begins, and lasts until the age of 20 or 21, when the physical development becomes complete; the bones are firmly set, in all their parts; the mind is also more or less developed; the sexes have attained "majority" in social life, and marriage introduces them to new responsibilities as parents. Adolescence is applied to the first period of adult life, from 21 to 28, and manhood to the riper period, from 28 to 35 or 36. The culminating period of physical and mental force combined is termed virility, and this may vary in different individuals, some waxing feebler soon, while others retain all their vigor from 36 to 48. The body then begins to lose its energy, and gradually declines through the descending periods of maturity and old age. The mind may still retain its power, and even acquire more knowledge and experience, but the body will not maintain so vigorous an exercise of thought and nervous action as in former years. The subdivisions of descending life are not so strongly marked, apparently, as those of the ascending phases, but in woman's life there is a critical period called "the change of life," which corresponds inversely to that of puberty. The capability of child-bearing begins with one and ends with the other. The "critical period," however, is not so fixed as that of puberty. With some, it occurs at 40, or 42, while with others it extends to 50, 55, or 60, and in some rare instances, still later, the average being 45. This period of sterility is still less marked and regular in man than woman. And here we may observe that, whatever be the length of the descending phase of life in different individuals, the ascending periods are nearly uniform in their average duration. The female sex is usually more precocious than the male, and women average longer lives than men, but that is probably because they are less exposed to accident and danger in the common course of things, for the extreme cases of old age recorded are more numerous in males than females.—Individuals become legally qualified for certain acts at given ages, and these vary in different countries, according to the laws and institutions. A child under 10½ years of age is not amenable to the laws of England for serious offences; the parents are responsible for its actions in minor cases. Above that age, the offender is responsible, when deemed competent to distinguish between right and wrong. The age of 14 is fixed, by the civil law, as the age of criminal responsibility; capital punishment, however, was inflicted for murder, in 1629, on a boy of

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8 years of age, who had most artfully concealed the body of his victim. The oath of allegiance may be taken after 12, and youths of either sex may choose a guardian at the age of 14; but no person under 21 can execute a valid will. The nubile age was fixed by the Roman law at 14 for males, and 12 for females, and at these respective ages either sex may, in England, consent to marriage, with the approval of guardians. By the code Napoleon, the nubile age in France is 18 for males and 15 for females, with the approval of guardians; and at 17, a person of either sex may be an executor or an executrix. The age of majority, which gives to both sexes the free disposal of themselves and of their property, personal and real, is 21, both in France and England, but in ancient Rome, minority continued until the age of 25. A candidate for holy orders may become a deacon in the church of England at 23, and be ordained a priest at 24; 30 is the age required to be eligible for a bishopric; 21 for a licentiate of the church of Scotland, for admission to the English or Scotch bar, and for receiving the degree of doctor of medicine, in many of the universities and colleges of Europe and America. The president of the United States must have attained the age of 35, a senator in congress must be 30, and a representative 25 years old. The usual term of service in the militia in the different states of the Union is from 18 to 45.—The age of man, as well as that of animals and plants, may be considered with regard to the influences of favorable or unfavorable circumstances and conditions, on particular tribes and constitutions; shortening the average duration of life for individuals, or lengthening it considerably, as the case may be. In fact longevity and premature decay depend as much upon the external conditions of life as upon the inherent qualities and structure of organic beings, animal or vegetable; and human longevity forms no exception to the law. Some are cut off by accident at birth; others live a few short months or years, and prematurely die. Numbers attain to full development before they quit the scene; but few attain to ripe old age, and fewer still to double the amount of years, assigned to what is termed the natural course of life, or "three score years and ten." And yet some individuals are said to have lived beyond the double limit, and attained the middle of a third natural cycle. This is one of the mysteries of life but little understood. The mystic formula of "a time, times, and half a time," may be compared with the natural period of 3 score years and 10, as 20 is the time of physical development; 2 more of these times or cycles bring man to 60; and an additional half a time to seventy—"the time of the end" of the natural career. But how are we to understand the very marked cases of exception? No answer can as yet be given to this question. Some philosophers believe that, under well-devised rules of conduct and favorable external conditions, the natural period of

life might be extended to 100 years, in lieu of 70; and M. Flourens, a French physiologist of high standing in the scientific world, has published a work recently, in which he treats of "human longevity" as dependent upon human prudence mainly, and easily prolonged by care to the limit of 100 years. There is, however, nothing very novel or convincing in his book, either in a physiological or in a philosophical point of view; although he takes for granted that longevity is most desirable to man and worthy of pursuit, as an addition to the sum of human happiness on earth. The usefulness of individual activity to the general well-being of the race, is the only interesting point involved in the consideration of longevity. Much more important is it, to consider how the natural term of life may be attained and healthfully and usefully enjoyed by the great majority of the race, than how a few, or many, might prolong their latter days in aged superannuation during 10, 20, 30, or 40 years, as some would inconsiderately seem to wish for. Extraordinary cases of longevity, therefore, are much more curious and interesting as exceptional facts, than they could possibly be as examples of what might possibly be rendered universal. History shows that the natural term of life has varied little during some 4,000 years, and the proportion of extraordinary cases of longevity, continues much the same at present as it was in former times. The average duration of existence is, however, quite another question; and this varies with the favorable or unfavorable habits of the people with regard to industry, morality, and civilized culture. Nor has latitude or longitude much to do with the duration of life, either with regard to average, or natural, or extraordinary periods; for in all latitudes and longitudes, where natural conditions are otherwise equally favorable, natural, exceptional, and average periods maintain respectively a similar ratio of proportionality. But, where peculiar causes of insalubrity of climate, or insufficiency of food and clothing, or excessive indulgence, or overtaxing the powers of body or mind, or any other habitual deviation from the natural laws of healthy equilibrium prevail, the average of life is shortened in proportion to the violation of the laws of health, whatever be the latitude and longitude of the locality. The average duration of life in Europe, according to statistical calculations, lies somewhere between 26 and 33 years; the highest average occurs in countries where wealth, commerce, and civilization are most universally diffused; the lowest where poverty and ignorance and despotism prevail. These facts have been carefully observed in our times by life-insurance companies, as the basis of commercial calculations. In England the rate of mortality is said to be $2\frac{1}{2}$ per cent. per annum; while in Russia, the returns of 1842 give $8\frac{1}{2}$ per cent. for the mortality of the whole empire, and considerably more than this, for certain provinces, including the basins of the Volga, the Dnieper, and the Don. The average

duration of life is therefore higher in England than in Russia; but we might probably find as many cases of exceptional longevity in Russia as in England, if statistical returns were made with equal care in the two countries. Comparative longevity has not received as much attention, as the averages of mortality and the mean duration of existence in civilized states, but numerous authentic records of individual cases may be found in every nation. The system of registration, recently adopted in England, gives authentic statistics with regard to ages and the average mortality of the united kingdom; and from these we learn that in the year 1852, when the population of England and Wales was 18,000,000, there died 85 males above 100 years of age (the eldest of these being 105), and 53 females (two of whom attained to 103, 1 to 107, and 1 to 106). In the register of deaths for the following year, are 81 males and 62 females above 100 years of age; the oldest male 109, the oldest female 110. The Russian tables published in 1842 give no detailed specification of ages above 90; but they record, for several years, the number of deaths of males upwards of 90, giving 5,000 for each year, which is a large proportion for the population. In Austria, including Lombardy, 446 persons died in 1842, at ages above 100, out of some 460,000 deaths, being nearly 1 per 1,000. In the Prussian states, 786 males and 890 females died in 1841, at ages upward of 90. In Norway, where the whole population, in 1845, approached 1,200,000, there were 19 males and 22 females above 100 years of age.—Pliny gives some instances of longevity taken exclusively from the region between the Apennines and the Po, as found on the record of the census instituted by Vespasian; and within these narrow limits he enumerates 54 persons who had reached the age of 100 years; 14, the age of 110; 20, 125; 40, 130; 40, 135; and 80, 140 years. In the single town of Valcatium near Placentia, he mentions 6 persons of 110; 4 of 120; and 1 of 150 years of age. Amongst the ancient philosophers and men of note, not to mention women, we find some cases of comparative longevity. Zeno is said to have lived 102 years; Democritus 104; Pyrrho 90; Diogenes 90; Plato 82; Isocrates 98; Hippocrates 99; Sophocles 90; and Gorgias, the master of Isocrates, 107. Terentia, the wife of Cicero, lived to the age of 103; Clovia, the wife of Ofilus, to 115 years; and numerous other instances of comparative longevity are recorded of ancient Greece and Rome; as well as of modern times and nations. Dr. Van Oven gives 17 examples of age exceeding 150 years; and Mr. Bailey, in his records of longevity, gives a catalogue of 8,000 or 4,000 cases of old age, verging closely on 100 or exceeding it, and not a few of them reaching as high as 150 years. Many of these cases may be more or less satisfactorily authenticated, but there can be no doubt of the comparatively frequent prolongation of human life to the age of 100, 110, 120, 130, and 140 years, or even more; but these are always more

or less exceptional in comparison with the average duration of life; and therefore, as judicious writers have observed, "no fit exponents of the universal natural capacity for life in man." It would hardly be deemed reasonable to believe that 6 feet is the natural mean of human stature, because some men attain the height of 7, 8, and even 9 feet, when long experience proves that 5½ feet have always been and still continue to be nearer to the average height of the male population of our globe; nor would it be less hazardous to fix upon 4 feet as the natural mean, because some dwarfs are hardly more than 3 feet high. Again, some men are extremely fat and bulky, others very slim and delicate; but these afford no proper data for conjecturing the average weight and bulk which men and women would attain to, under given modes of hypothetical breed and culture; nor does any category of exceptions, that we know of, warrant us in conjecturing that the natural period of human life might be prolonged by care or culture; but the average which falls below the natural term, might certainly be raised by due attention to the laws of nature and the known requirements of healthy life in states and cities, families and individuals. The natural term of life differs to some extent, no doubt, in different persons, though not as the natural height or stature differs in different families; for all men attain to virility about 25 or 40, however slowly they decline into old age. In either case, the exceptions are few in number in proportion to the rule. Men 3 feet high or 9 feet high, are extremely rare; 4 feet and 8 are less so; 5 and 7 feet are much more numerous, and 6 feet is a very common stature, but the great majority are not so tall. Extreme longevity is also very rare in both sexes. A very small proportion, one in many millions, may attain to twice the usual term of natural existence, and possibly enjoy good health during a great part of that long life; but many persons who attain to an extreme old age, merely drag the body through a dreary prolongation of helpless senility. The ascending periods of life from birth to 40 years of age, seem nearly equal in all cases; and to this extent we may regard the natural term of human development as normal or constant; but some maintain their vigor many years, and then decline most rapidly and die, while others decline slowly, and enjoy as long an evening of life as their prolonged afternoon. This view of the fact might give some plausibility to the theory of continuing for all by artificial means, that slow decline which nature, unassisted, manifests in some rare instances; but nothing being known of the causes of such exceptional longevity, nothing can be logically predicated of the possible results of any human scheme for lengthening the descending period of human life, and thus frequently attaining extreme old age. Extraordinary cases of longevity belong to an exceptional law of nature, just as much as extraordinary stature, poetical, artistic, scientific, or

inventive genius; and though education may improve the intellect and taste of the whole race, no amount of culture can produce genius, or increase the stature of the body, or render general the naturally rare occurrence of longevity. — Little is known of the age of animals, especially the non-domesticated tribes. Some isolated facts, however, have been noted with regard to the age attained by certain birds, fishes, reptiles, elephants, &c. The Indians believe that the elephant lives about 300 years, and instances are on record of their having been kept in captivity as long as 130 years, their age being unknown when they were first taken wild from the forest. Camels live from 40 to 50 years, horses average from 25 to 30, oxen about 20; sheep 8 or 9, and dogs from 12 to 14 years. As a general rule, the larger types of animals live longer than the smaller, in the vertebrated classes, quadrupeds, birds, reptiles, and fishes. Some kinds of birds attain to a great age; the swan has been known to live a hundred years; and there are instances on record of the raven having exceeded that age. Birds of prey attain to great longevity; the eagle has survived a century. Parrots have been known to live 60, and as long as 80 years. The gallinaceous tribes live not so long. Pheasants and domestic poultry rarely exceed 12 or 15 years. Reptiles, of some kinds, live very long. A tortoise was placed in the garden of the archiepiscopal palace of Lambeth, in the year 1683, during the life of Archbishop Land, and lived till the year 1753, when it perished by accident; thus living 120 years, without having attained the natural term of life. Nothing is known of the age of large serpents, such as the boa, but smaller reptiles, as the toad, are known to live about 15 years. Fishes, and animals that live in the water, attain, in many instances, to a great age. The carp has been known to live 200 years. Common river trout have been confined in a well 80 and even 50 years, and were still living. A pike has been known to live in a pond 90 years; and Gesner relates that in 1497, an enormous pike was caught in a lake near Hailerun, in Suabia, with a brass ring attached to it, bearing that it was put in the lake in the year 1230. The pike must have lived, therefore, at least 267 years; the ring is still preserved at Mannheim. The age of the whale is known by the size and number of laminae of certain organs in the mouth, formed of a horny substance, commonly known as whale-bone. These laminae increase yearly, and if the mode of computation be correct, they indicate, in certain cases, that the animal attains to an age of 3 and even 4 centuries. Little is known of the age attained by animals of the lower types, such as articulates, mollusca, and radiata; that of insects has received some attention, and it has been remarked, that though the first period of life, passed in the grub or caterpillar state, extends to several months or even years, the great majority live but a few days or weeks after the metamorphosis by

which they attain to a more perfect form. The ephemera, when it leaves its grub-life in the water, and assumes a higher form and an aerial existence, lives but a few hours, and dies the very day on which it was born into its new life; whence its name, ephemera, or, passing in a day. As there are various external signs denoting age in man, from childhood to extreme old age, so there are means of judging of the age of animals by similar external signs, but they have only been observed with care in some of the domestic animals. The age of the horse in his ascending phase of life, is known chiefly by the growth and appearance of the teeth, and more especially of the incisors, commonly called nippers. These, however, lose their distinctive marks when the animal passes his 8th year, and are no longer useful to denote the age exactly. In each jaw of the horse there are 6 of these nippers, broad, thin, and trenchant in the foal; while, in the adult animal, the crowns become flat, and marked in the centre with a hollow disk. The foal or milk teeth appear about 15 days after birth. At 2½ years of age, the middle pair drop, and are replaced by the corresponding permanent teeth. At 3½ years the two next, one on each side, fall, and are likewise replaced. At 4½ years, the two external nippers or excisors drop and make room for the corresponding pair of permanent teeth. All these permanent nippers are flattened on the crown or upper surface, and marked in the centre with a circular hollow pit; this pit is gradually defaced, as the tooth wears slowly down to a level with the bottom. By the degree of this detrition, or wearing of the teeth, the age of the animal is determined up to the 8th year, when the marks are generally quite effaced. The external pair of nippers, however, appearing a year or two after the intermediate pair, preserve their original form proportionably later. The age of a horse may still be determined for a few years, after the 8th year, by the appearance and comparative length of the canine teeth, or tushes; these, however, are sometimes wanting, particularly in the lower jaw; and, in mares, they are rarely developed at all. The tushes of the under jaw appear at the age of 8½ years, those of the upper jaw at 4. They are sharp-pointed until the age of 6, and at 10 become blunt and long, because the gums begin about that time to recede from the roots of the teeth, leaving them naked and exposed. After this period, there are no certain means of determining the age of a horse, but some conjecture may be made from the comparative size, bluntness, and discolored appearance of the tushes. The age of horned cattle is more readily determined by the growth of the horns, than by the growth, succession, and detrition of the teeth. But here we must observe that the horns of oxen, sheep, goats, and antelopes, being hollow and permanent, differ widely both in form and in the manner of their growth, from those of the deer tribe, which are different in structure, and also

deciduous. The deer kind shed their horns annually, and, with the single exception of the rein-deer, the males alone have horns. At first, they have them in the form of simple prickets, without any branches, or antlers; but each succeeding year adds one or more branches, according to the species, up to a certain fixed period, beyond which the age of the animal can only be conjectured from the size of the horns and the thickness of the burr or knob at their roots, which burr connects them with the skull. The prickets or first horns of the common stag, fall during the 2d year of the animal's life, each one being replaced by one with a single antler, and thence called the fork. This falls during the 8d year, and is replaced by the 8d kind, which has commonly 3 or 4, and sometimes 5 branches. The 4th and following pair have a like number of branches, and the number of antlers goes on increasing in the same manner till the 8th year of the animal's life; after which time, they follow no fixed rule, but continue to increase in number, particularly near the summit of the horn, where they are sometimes grouped in the form of a coronet, and thence called "royal antlers." The fallow-deer, the roebuck, and other species of this genus, present similar examples of development; the number of the antlers increasing in a fixed ratio, up to a certain time, beyond which the age, as in the stag, can only be determined by the comparative size of the burr and that part of the shaft or horn from which the antlers grow. In the fallow-deer, the prickets of the 2d year are replaced by horns bearing two antlers already indicating the palmated form, which afterwards distinguishes them from the antlers of other deer. This palm increases in breadth, and assumes an indented form on the superior and posterior borders, and the 4th pair of horns, shed in the 5th year of the animal's life, are replaced by others in which the palm is cloven or subdivided irregularly into distinct parts, assuming, in old animals, a great diversity and singularity of form. Finally, the horns begin to shrink in size, and are said to end in becoming simple prickets as in the 1st year. The horns of oxen, sheep, goats, and antelopes, are hollow and permanent. They consist of a sheath of horn covering a bony core or process of the skull, and growing from the root, where an additional knob or ring is formed each year; and thus the number of these rings is a sure indication of the animal's age. The growth of the horns is not uniform throughout the year, but varies with the seasons. The increase takes place in the spring, and there is no further addition until the following year. In the cow kind, the horns appear to grow uniformly during the first 3 years; and up to that period they are smooth and without wrinkles; but after the age of 3 years, each succeeding year adds a ring to the root of the horn. The age is determined, therefore, in this species, by allowing 3 years for the smooth part of the horn, and 1 for each of the rings, where they

exist. In sheep and goats the horns show their first knob or ring in the 2d year, whence the top or smooth part counts for only 1. These peculiarities have not been sufficiently observed in antelopes to give us a reliable rule for determining the age of the animal by the growth and appearance of the horn; and hence, nothing positive is known of their relative ages and natural longevity.—Plants and trees originate in seeds or vegetable germs, as animals from ova; and both are subject to the laws of organic formation, growth, reproduction, and decay. Moreover, as some forms of animal life are very brief in their natural career, beginning, as it were, and ending in a day, like the ephemera, while others are continued for a century, and more, as the elephant, and even 3 or 4 centuries, as the whale, so it is with vegetable life; some run their whole career in one short year or two, as the innumerable families of annual and biennial plants, while some few species of the larger growth of trees live centuries, and even tens of centuries, before they finally decay and die. The oriental plane, the baobab, the chestnut tree, and the deciduous cypress, are said to furnish individual specimens, the age of which attains to several thousand years; as much, in fact, as 4,000 or 5,000 years or more. Yew trees are reported to attain, in certain cases, as much as 1,500 or 2,000 years, and still be flourishing in green old age. Oak trees are said to live, in favorable conditions, as much as 1,200 years; and numerous instances are cited of trees known to be of 800, 400, and 700 years' standing in particular localities. Cypressess, lime trees, and elms, are mentioned as having attained respectively the ages of 800, 500, and 800 years or more, and to be still existing in verdant dignity, to testify their venerable authenticity. Adanson found trees of the baobab species in Africa, which he computed to be 5,150 years of age; and the younger De Candolle reports the deciduous cypress of Chapultepec, in Mexico, to be still older. The baobab of Senegal measuring 90 feet in girth, and the gigantic *dracena draco* at Oratoria in Teneriffe, which Humboldt classes with the baobab, are supposed to be the oldest, or amongst the oldest inhabitants of the earth. The famous sweet chestnut tree, on Mount Etna, one of which measures 180 feet in circumference, another 70, and another 64, are said to be as old as the baobabs, just mentioned; and the oriental plane tree in the valley of Buyukdara, near Constantinople, having a girth of 150 feet, and an internal cavity 80 feet in circumference, is deemed as old as any other tree existing. Eight olive trees are still to be seen on the Mount of Olives, at Jerusalem, which historical documents prove to have existed before the Turks took possession of that city, more than 800 years ago; and the yew trees at Fountain abbey, in Yorkshire, were reported to be old when the abbey was erected, in 1182. They are probably more than 1,000 years of age now; and the old yew tree formerly

in Fotheringhill church-yard in Perthshire, and measuring 56½ feet in circumference, was believed to have existed more than 20 centuries. At Ankerwyke house, near Staines, is the celebrated yew tree, older than the meeting of the English barons at Runnymede, in June, 1215, the date of Magna Charta; and many other cases of extreme antiquity are well authenticated with regard to trees of the yew species. The trunk of the Ankerwyke house yew tree measures 9 feet 3 inches in diameter, at 3 feet from the ground, and its branches overshadow an area of 207 feet in circumference. Oaks are well known to attain great age. Many have been cut down in the "new forest" which presented as many as 300 or 400 concentric rings, each of which denote a year's growth, and many oaks exist much larger in dimensions and of greater age; some exceeding probably 1200 years. Dr. Plott mentions an oak felled at Norbury which measured 45 feet in circumference. The Broddington oak, in the vale of Gloucester, was 54 feet in girth, and Damory's oak in Dorsetshire 68 feet. The age of the latter was computed to be about 2,000 years. Wallace's oak at Ellersley, near Paisley, in Scotland, is believed to be more than 700 years of age, and is still flourishing. At Trons, in the Grisons, a lime tree, measuring 51 feet in girth, planted in 1284, was still existing in 1792, and was therefore known to be nearly 500 years of age; and in 1776 some famous cypresses called *cypresses de la sultana*, existed in the palace garden of Granada, were reputed to be 800 or 900 years old, as they had formed part of a cypress grove in the time of the Moorish kings in Spain. An elm tree planted by Henry IV., was standing in the garden of the Luxembourg palace, in Paris, at the commencement of the French revolution, 1789; and others are known to be of more than a century's growth; but it is not well ascertained that they sometimes, as affirmed, attain to the age of 800 years. Bacon's elms, in Gray's Inn walks, London, planted in 1600, decayed prematurely in 1720, and the elms of the long walk at Windsor, planted early in the last century, though still fine trees, are evidently past their prime. The age of certain trees, as here reported from the calculations of learned botanists and others, seems almost fabulous, and thence it may be well to state the most accurate means of calculation. The way in which the age of some of these trees has been computed is twofold: first, by comparison with other very old trees, the rate of growth of which was known, and secondly, by cutting out a portion of the trunk from the circumference to the centre, and counting the number of concentric rings that are visible. In exogenous trees, the woody cylinder of one year's growth is divided from the succeeding and preceding by a denser substance, which marks distinctly the lines of separation between each year. The first of these methods is sufficiently trustworthy to give an approximation to the truth, and the second would be still more

reliable, if care were taken to avoid all cause of error; but Dr. Lindley states in his introduction to botany, that, owing to the extreme inequality of thickness in the annual layers of wood on opposite sides of a stem or trunk, an examination made on the stunted or less developed side only, might lead to a miscalculation of the age; the error thus induced being in some cases as much as 60 per cent. or more. There is no good reason to suppose, however, that such mistakes are common, or that the ages of celebrated specimens, authenticated as above, have been obtained by such miscalculations. The modes of growth differ in plants and trees of different orders. In monocotyledons, as the palm trees, bamboos, wheat plant, &c., the mode of growth is called endogenous. The diameter in these is first increased considerably, until a certain magnitude has been attained, and then the stem shoots up without increasing much in girth. The addition of new matter to a trunk of this kind takes place by the longitudinal insertion of new fibres between the existing fibres, inwardly and near the centre. Hence, the mode of growth being inward, it is termed endogenous. In the dicotyledonous order of plants and trees, the mode of growth is just the opposite. The length and bulk increase together, and the addition of new matter to the trunk is effected by the longitudinal insertion of new fibres between the wood and the bark, beneath the latter and outside the former; and hence this mode of growth is called exogenous. There are some exceptions to these modes of growth, in what may be deemed ambiguous species, but they are not of much importance here. We may state, however, that if monocotyledonous and exogenous plants in the phanerogamic class, be placed in parallel with birds and the oviparous tribes of the vertebrated animals, and the dicotyledonous, exogenous plants with the mammalia, the ambiguous growth of plants might be compared with the ambiguous structure of bats, which fly like birds and yet belong to the mammalia. This, of course, is merely a comparison, to give an idea of ambiguity in structure. The palm trees, and some tropical tribes of endogenous plants, are said to attain to an age of 100 or 200 years, and it has been supposed that certain Brazilian cocoa-nut palms may be as much as 600 or 700 years old; but the method of computing their age is hardly to be relied on. This consists in counting the number of rings externally visible upon their rind, between the base and the summit of the stem, or by comparing the oldest specimens, the age of which is unknown, with young trees of a known age, and like species; but no confidence can be placed in such a method; and the date palm, which is best known to Europeans, does not attain to a very great age. The Arabs do not assign to it a longevity exceeding 2 or 3 centuries. Their mode of growth seems to preclude even the possibility of their attaining to a great age, compared with the exogenous class. The diam-

eter to which the trunk finally attains, is very nearly gained before they shoot up far in height, and all the new woody fibre which every successive leaf produces during its development, is insinuated in the centre; in consequence of which, the woody matter previously existing in the centre of the stem is displaced and forced outward to the circumference. This action being constantly in progress, the circumference which, in the outset, was soft, becomes compressed and hardened by the pressure from within outward, until at last, being limited in its circumference, it can no longer yield by closer packing within given limits, and must offer an insuperable barrier to further growth of fibre in its texture. As none of the fibres are absorbed to make room for others in the course of their development, the more external parts become first solidified, and gradually all the rest, from the circumference to the centre; and as few or none of the trees of this class, exceed a foot or 18 inches in diameter, and their growth is more or less luxuriant, in the tropics, it is hardly probable that they can ever attain to any very great longevity; for the vitality depends upon the activity of all the functions of the leaves, and the cessation of one, is the obstruction of all; hence the plant must wither and decay, after attaining to a maximum of density of structure. Exogenous trees, however, are not limited by any such necessity. To their development no limit of this sort can be assigned. In consequence of all the new woody fibre which is constantly formed by the leaves of exogenous trees, being developed beneath the bark near the circumference of the trunk, and the bark itself admitting of distension, no deadening compression is made by the new parts on those previously formed. The bark gives way naturally to make room for the new growth of wood beneath it, which forms a ring or layer on the wood below; and thus successively, each year, without excessive pressure of the parts. The greatest degree of vitality, however, resides in the newly formed wood, while life becomes extinct, by slow degrees, in the wood near the centre. And here we may observe, that, as each successive layer has a vitality of its own, the gradual decay of central parts does not affect, in any high degree, the life of newer rings in the circumference. Hence, trees in the most vigorous health and flourishing external development, are often found decayed within, at what is called the heart or core. Exogenous trees being formed of a succession of hollow cylinders or layers, increasing in diameter and sheathing one another, and each successive layer being, as it were, endowed with independent life, we may easily conceive that under circumstances favorable to continuous growth, some individuals of this class may live and thrive for almost any length of time; and hence the probability of accurate estimation with regard to the extreme antiquity of certain specimens reported as above.

AGEDA, a meeting of Jewish rabbis in the

year 1650, held in the plain of that name, about 90 miles from Buda. They met to debate whether the Messiah had come; the question was decided in the negative.

AGELNOTH, a son of Earl Agilmer, and dean of Canterbury, and afterward (1020) raised to the archbishopric of that see by Pope Benedict VIII., under the reign of Canute the Great. Agelnoth was a great favorite of Canute, and his influence on that king was personally salutary. He also exerted himself to secure his aid in interest of many foreign churches. Agelnoth was called the good archbishop, and held the see until his death, which occurred 17 years after his elevation. He seems to have had a great fondness for relics, and gave a good price for them. It is recorded of him, that while he was on his way to the pope to receive his pall of office, he bought one of the arms of St. Augustine, and sent it back to England, as a present to Leofric, the earl of Coventry.

AGEN, a city in France, capital of the department Lot-et-Garonne, in lat. 44° 12' N. long. 0° 37' E. It is built on the Garonne, which is here crossed by a fine stone bridge of 11 arches. The town is old, and ill built, but well situated for trade. It was formerly famous for its scarlet dyes; at present its products are linen, serges, cotton counterpanes, swan-skins, starch, handkerchiefs, leather, and brandy. Here also large quantities of fine wheat, wine, flax, hemp, fruits, chestnuts, tobacco, madder, and cattle, the products of the territory of Agenois, find an outlet. In a gorge in the hill L'Ermitage, is the house in which Julius Scaliger died, and his son Joseph was born. Agen is famous for its prunes, and 5 three-day fairs are here held yearly. Population 14,987.

AGENDA, the gerundial participle of the Latin verb *agere*, to do, and meaning literally things to be done. Theologians speak of the practical moral obligations of a Christian as *agenda*, in contradistinction to *credenda*, or his obligatory dogmatical beliefs. Ecclesiastical writers use this word in connection with the service of the church: thus we have *agenda matutina et vespertina*, morning and evening prayers; *agenda diei*, the office of the day, whether feast or fast. In secular life, business men use it to denote the items of business which they have to perform from day to day.

AGENOIS, a district in France, in the department of the Garonne, formerly the province of Guienne. It contained 1,080 square miles. The soil was fertile, and the climate salubrious.

AGENT, in law, is a person appointed to perform an act for another. He may be either special or general, or may be appointed either expressly or impliedly. No form of appointment is required. An agent may be created either by deed, or by a simple letter, or by word of mouth. To execute legal instruments, the authority must be equal in value with the instrument to be executed; thus a power to sign and execute deeds must be created by a power under seal. Some persons are agents by the

very nature of their business, such as attorneys, auctioneers, bailiffs, brokers, captains, factors, and others. The agent may bind his principal by his acts. Such liability must necessarily be brought within the scope of his authority; thus, the captain of a ship could not bind his owners in the purchase of a piece of land. The agent entering into a contract on behalf of a principal, whose name he discloses, is protected from personal liability. But, if acting on behalf of a principal unknown, he is himself liable, unless the third party elect to proceed against the principal. A professional agent is bound to exercise due diligence, and to bring a fair degree of skill and knowledge to the discharge of the duties he undertakes. If he be an unprofessional agent, he is still bound to exercise the ordinary judgment of a prudent man in the conduct of his own affairs. The circumstance of his being a gratuitous agent, does not alter the liability of the agent to the principal in this respect. The limits of an agent's powers must be determined by the nature of his instructions. If special, he is limited to their strict letter; if general, he must act for the best interest of his principal, according to circumstances, and in these the usages of trade and commerce will have considerable weight in determining the propriety of his conduct. He is bound to give early notice of all occurrences affecting his principal's interests; he is bound to account for funds immediately on their receipt, and even for the usufruct of the same if retained or employed by him; he may not buy from or sell to his principal, unless by express assent; and in some cases contracts for the benefit of a person acting in a fiduciary capacity, are absolutely void. The rights of an agent are to reimbursement of all charges and expenses which he may have incurred in the proper discharge of his duties, and not caused by his own carelessness or negligence. He is also entitled to remuneration of a reasonable character for his services; and lastly, he is entitled to indemnity against the consequences of all acts done by him, on behalf of his principal within his powers, provided that such acts are not wrongful to third parties, in which case the agent is personally liable. For the more complete protection of his rights in these respects, he has a lien upon all property of his principal placed in his hands. The position of third parties may be inferred from the foregoing. The agent may, in his dealings with third parties, bind his principal in all matters fairly within the scope and object of his employment. If he exceed his powers, the third party has no claim whatever on the principal; the claim which the third party may have on the agent must depend on the nature of the case, and in particular, on the fact of his principal being disclosed. In the case of public officers, whether acting within their powers or not, they are not liable for contracts entered into as such public officers. For wrongful acts and injuries (not of a criminal character) committed by agents, such as

trespasses, under color of law, or accidents, resulting from negligence, the principal may be made liable, provided that the agent's acts be incontestably within the line of his duty. But the perpetrator of a wrong, not being entitled, by the policy of the law, to shield himself behind a principal, the agent is liable as well as the principal. In some cases agents are brought within the pale of the criminal law by their want of probity. The celebrated case of Paul and Strahan, the London brokers, was a breach of faith in pawning their customers' securities for their own uses.

AGESILAUS, flourished B. C. 398, was the son of Archidamus, king of Sparta. He was not the legitimate heir to the throne, but Leotychides his elder brother, being suspected of illegitimacy, was set aside on his father's death by the influence of Lysander, and Agesilaus substituted for him. Agesilaus had not been brought up with these large expectations, and had received the same education as any other Spartan citizen. This fact made him very popular with the mass of his countrymen. When young, Lysander had that connection with him, which was common in Greek manners, and especially encouraged at Sparta, but which is so deeply abhorrent to our own moral code. One drawback he had, the force of which can hardly be appreciated now, but one which is always powerful in early communities. He was lame, and was besides of small stature. Objection was made to him on this ground when Lysander proposed him for the succession, and an augur prophesied against him, repeating some old oracle, that it was contrary to the divine will that a lame man should sit on the throne of Sparta; and that woes would befall the state when such an event happened. Lysander replied that a lame-footed king was better than a man who was not of pure Heraclidean blood. Agesilaus submitted to the restraints of a constitutional king, and paid court to the ephori. Plutarch says, if he was called he went faster than usual; if he was upon his throne administering justice, he rose up when the ephori approached; if any one of them was admitted a member of the senate, he sent him a robe and an ox, as marks of honor. Soon after his accession, an expedition against Persia was determined upon. Agesilaus, accompanied by Lysander, accepted the command of it on condition that 30 pure-blooded Spartans should accompany him as his officers and counsellors, together with a select corps of 2,000 newly enfranchised helots, and 6,000 of the allies. This was granted, and Lysander placed at the head of the council of war. He burst into Asia Minor, B. C. 396, taking Tissaphernes, the Persian satrap, quite unprepared. Tissaphernes solicited a three months' truce from Agesilaus. It was agreed to, and solemnly sworn to by both parties. The treacherous Asiatic broke his word; not so Agesilaus. He kept the truce, saying that Tissaphernes had by his perjury alienated public opinion from his cause, and

provoked the gods against him; while he (Agesilaus) by respecting his oath, had rallied his own army round him, had made the gods favorable to him, and thrown the public opinion of Asia Minor on his side, which always respected men who respected their plighted faith. He was very successful in his operations in Asia Minor, gained much booty, and conquered many cities. He then betook himself and army into the government of the satrap Pharnabazus. Plutarch tells a characteristic anecdote of an interview that took place between the two commanders. Agesilaus came first to the place appointed, with his friends, and sat down upon the long grass, under a shade, to wait for Pharnabazus. When the Persian ruler came, his servants spread soft skins and beautiful pieces of tapestry for him; but, upon seeing Agesilaus so seated, he was ashamed to make use of them, and placed himself carelessly upon the grass in the same manner, though his robes were delicate and of the finest colors. After a two years' campaign he brought his army into the highest state of efficiency, and never allowed it to desecrate any of the temples of the foreign gods. Having overcome all the satraps in the neighborhood, Agesilaus conceived the gigantic scheme of penetrating to the heart of the Persian empire in Ecbatana and Susa, and meeting the Persian dynasty face to face, as Alexander afterwards did. The money of the Persian monarch had mean time been freely used in Athens and Thebes, and had stirred up in Greece itself a coalition against Sparta and her allies. The ephori sent a messenger to Agesilaus, recalling him home, to carry on the war against the Hellenic enemies of Sparta. He was at the head of a devoted and victorious army, and the temptation was strong to disobey the jealous order. But by a wonderful exercise of self-command, and with his heart full of heaviness, he determined to obey the civil magistrates. This conduct has commanded the admiring tributes of Greek and Latin historians. He returned from Asia Minor by way of the Hellespont through Thrace, Macedon, and Thessaly, fighting his way when he was opposed. Xenophon, the general of the ten thousand, and the historian, accompanied him. The homeward march he made in 30 days, whereas it had taken Xerxes a whole season a century previously. He met the anti-Spartan allies at Coronea in Boeotia, B. C. 394, and fought a well-contested battle in which he gained the advantage. Agesilaus was severely wounded, and many of his choice body guard of true-blooded Spartans slain. Yet under this exasperation he would not allow a party of the enemy who had taken sanctuary in a temple of Minerva, to be molested. He regretted the Corinthian war, because it weakened the forces of the Greeks in a fratricidal struggle—those forces which, in his opinion, should have been turned against the Persian monarchy. During this time he conceived a bitter hatred of Thebes, which led him afterwards to wage im-

placable war against that state, and to espouse a policy which ended in the disastrous battle of Leuctra and the humiliation of Sparta. On his return to Sparta, he enjoyed the greatest consideration, and extended a generous hospitality to the Athenian exile, Xenophon, who has left a panegyric upon his patron and entertainer. His bitter animosity against Thebes led him to screen and support Phœbidas, the treacherous Spartan who seized the citadel of Thebes, and Sphodrias also, who made an equally unprincipled but less successful attempt upon the Athenian Peiræus. Agesilaus justified his conduct on the ground that both acted for the good of Sparta. This wrongful conduct to states with which Sparta was at peace, united Thebes and Athens, and they jointly declared war against Sparta. Agesilaus was not present at the defeat of Leuctra (B. C. 371), after which Sparta never regained her ancient ascendancy, but defended the city of Sparta with success against Epaminondas and his allied army. The Spartans attributed this misfortune to the fact of their having a lame king. Nothing but the fortitude of Agesilaus saved Sparta from capture at this time. His son, Archidamus, soon afterwards gained an easy victory over the Arcadians, which revived the drooping courage of the Spartans. Agesilaus could never bring himself to acquiesce in a peace with the Thebans, which recognized the independence of Messenia. The impoverished condition of Sparta after Leuctra, was partly remedied by the benefactions of Agesilaus, who gave up to the state all the money and presents which he had received from various oriental potentates. He spent nothing upon his own or his wife's person, or in decorating the royal residence. The last scene of the life of the veteran warrior was held by the Greeks to have been unworthy of his renown. He agreed to aid Tachos, an Egyptian revolter against the Persian monarch, with a band of Laconian mercenaries. On his arrival in Egypt, he gave the ointments, the desserts, and the banquet-chaplets which Tachos had sent him by way of compliment, to his helots. When he landed, he slept on the shore on straw, and under the open sky, though more than 80 years old. The Egyptians could hardly believe that the dirty, weazen-face little old man whom they saw before them, was the man who once held the destinies of the civilized world in his hands. Tachos would not even give him the supreme command of the land forces, but offered him the post of second in command after himself. This disgusted the old soldier, and when Nectanabis revolted from Tachos he declared for Nectanabis. Nectanabis did not wholly confide in him, and subjected Agesilaus to new humiliations. He, however, rescued Nectanabis from a perilous position, defeated the latter's opponents thoroughly, and seated him firmly in power. Nectanabis gave him 220 talents for his services, with which he made haste home to lay them at the feet of his

beloved Sparta, then engaged in war. He never reached home; but died on the coast of Africa, whither he had been driven by a tempest, at the age of 84, after a reign of 41 years, for 80 of which and until the battle of Leuctra, he was looked upon as the foremost man in Greece. His body was embalmed in melted wax and taken home to Sparta, where he was splendidly buried.

AGGAS, RALPH, a surveyor and engineer in the 16th century, died A. D. 1579. He made the first map of London.

AGGHERHUUS, a province of Norway, of which Christiania is the capital, contains 36,891 square miles of territory, and 687,081 inhabitants. It abounds in beautiful scenery, mountains, lakes, and waterfalls. The climate is severe, the frosts lasting till May. The chief trade is in pitch and lumber, with some iron, tallow, and hides. The inhabitants are of the Lutheran confession.

AGHMAT, a fortified Moorish town, on the northern side of Mount Atlas, 24 miles S. of Morocco. It has a population of 6,000, of which 1,000 are Jews.

AGHRIM, a village in Galway, Ireland, famous for the crowning victory of William III. over James II. The marquis St. Ruth, a French general, commanded the forces of James, while Ginkell led those of William. St. Ruth had made able dispositions for the battle, but, jealous of the Irish generals, had kept his plans to himself, and when he was killed by a cannon shot early in the action, there was no one to succeed him. The English troops, in spite of the well-chosen position of their opponents, totally routed James's army. The brave Sarsfield threw himself into Limerick. The place is of no importance at present.

AGIER, PIERRE JEAN, a French magistrate, born at Paris Dec. 28, 1748, died Sept. 22, 1828. He was an advocate in the parliament of Paris after 1769, and took part with it in its quarrel with Maupeou. He threw himself with ardor into the revolutionary movement of 1789, and was substitute-deputy of the third estate at Paris. After the 9th Thermidor, he was named president of the revolutionary tribunal, and took part in this character in the sentences passed upon the personal followers of Robespierre and Fouquier-Tinville. He occupied various magisterial or judicial offices under the consular, imperial, and royal régimes. He was author of several works on the Hebrew prophets, and upon the changes made in the old French law at the time of the revolution.

AGINCOURT, a village and castle in the Pas de Calais, in France, 7 m. N. from Hesdin, and 11 E. from Montreuil, on the plains in the vicinity of which Henry V. of England won a great battle from the French, in the year 1415. Following the hereditary rule of his house, the young king, in the 8d year of his reign, had invaded France, landing at Oaux at the mouth of the Seine, had taken and sacked Harfleur, and was on his march through the heart

of France toward Calais, at that time an English garrison town, well fortified and manned, when the French king having assembled all his principal nobility and called out the ban and arriere ban of France, advanced with an immense force, and all the brilliant chivalry of his great and warlike nation, to intercept the handful of English invaders; for Henry had with him, in all, but 2,000 horse and 18,000 infantry of all arms, principally bill-men and archers. With this little force, sorely harassed and almost famished—for the enemy's light-horse kept the country, and prevented the Englishmen from foraging, and the villagers were hostile; and the walled towns closed their gates—Henry had advanced as far as Pontoise, where he hoped to pass the Somme, when he found, on his arrival, that all the bridges were broken, and learning that the French king was lying at Rouen with a vast superiority of force, determined on bringing him to battle. Thence he moved on the fords of Blanchetaque, where his great-grandfather, Edward III., had passed that river, shortly before the battle of Crécy, but found the passes so strongly guarded, both there and at the bridge of Pont St. Maxence, that he could not hope to cross over without fighting at disadvantage. This he was by far too good a soldier to do, wherefore he passed by Amiens in good order, and after skirmishing a whole day with the armed peasantry and the men-at-arms from the garrison at Oorbie, he succeeded in discovering a shallow ford between that city and Peronne, by which he succeeded in crossing the river unmolested, and now hoped to make good his retreat to Calais, without fighting; for his army was in sorry plight. Their provisions were all consumed; forage they could not, for the enemy had wasted his own country; rest they could not, for his skirmishers kept them constantly on the alert. "Daily it rained and nightly it freezed," says the old chronicler; "of fuel was scarceness, of flakes was plenty; money they had enough, but comfort they had none." At this time, Montjoie, king-at-arms, came to Henry with a defiance from Louis, and a notice to prepare for battle; to which Henry returned answer, that although he did not propose to seek his master, he surely should not avoid him, and that if any of his nation should attempt to stop him on his way to Calais, it would be at their own jeopardy. Then, perceiving that a conflict was inevitable and close at hand, he passed by the town of Blangy, and selected his own ground, in the open fields, between that place and Agincourt. The same night, the French army came up, numbering 60,000 men-at-arms, resplendent in all the bravery and heraldic pomp of mediæval chivalry, expecting to trample the worn and starving Englishmen under foot, at a single charge of their barbed horses, and pitched over against the English, between them and Calais, in the county of St. Paul, within the territory of Agincourt. All night long the French feasted about their fires, with great revelry and abundance of

good cheer; but the English having neither food nor fire, their king, with the inspiration of a true soldier, kept their spirits alive and stirring by continual fanfares of trumpets, and an incessant roll of the martial airs of England. Mean time, he had disposed his battle with rare skill, posting his little force on a gently ascending slope, having a scattered hedge along its front, with a deep, miry meadow before it, between him and the cavalry, on which the enemy mainly relied, although he had both German arquebusiers and Genoese cross-bows. The whole front of Henry's archery he had fortified with a *cheval de frise* of iron-shod and iron-pointed stakes, and beside disposing his own small force of cavalry on his wings, so as to act, at the crisis of the battle, on the flanks of the French, he had advanced a body of 200 picked archers, at right angles to his front, ambushed along a little copse of willows, which was protected by a wide and deep drain, impassable to the French horse, which must thus advance to the attack through ground in which they could not gallop, under a cross-fire of the deadly English archery, which no enemy had ever yet braved with impunity. His van, all of archers, was commanded by the duke of York, and the lords Willoughby and Beaumont. The centre, composed entirely of bill-men, were under his own command, assisted by the duke of Gloucester, his brother, and the earls marshal, Oxford and Suffolk. The duke of Exeter led the reserve, a mixed force of bills and bows, and an old knight of great experience in the field, Sir Thomas of Erpingham, had the leading of the archers in the meadow. Against these, Oct. 25, 1415, being on a Friday morning, the day of St. Crispin and Crispinian, advanced the French host, at least 6 times superior to the English numerical force, and yet more superior in all that constitutes an army, unless it be discipline, as arms, equipments, horses, and not least, the health and condition of the men. They came on in 8 bodies, or battles as they were called. The van consisting of 8,000 helmets of crested knights, with 4,000 esquires and 1,500 cross-bows, beside two wings, one of 800 and another of 1,600 picked men-at-arms, and a reserve of 800 more, especially designed to charge into the English archery, and prevent the effect of their fatal shot, as had been done by Bruce, so successfully, at Bannockburn, which probably suggested the idea of the manœuvre. This great body was commanded by the constable of France, D'Albret, having with him the dukes of Orleans and Bourbon, the marshal Bourciquet, the master of the cross-bows, the lord high admiral of France, with many earls, and famous captains. The centre was equal, in force, to the van, and was led by the dukes of Alençon and Barre, with all the flower of the French chivalry. Nor was the rear, which consisted of all the remaining men-at-arms, under the orders of the lords Annerle, Fauconberg, and Dammartin, inferior to the van and centre. Before the battles joined, the duke of Alençon

sent a herald to inquire, what ransom Henry would be willing to pay for permission to retreat unmolested; to which he replied that he trusted in God, within 8 hours' time the French would come to him offering ransom; and then passed the word along his lines to stand firm, and to shoot no shot until the word should be given. But as soon as the French men-at-arms heard the reply, they were seized with indignation that they were so defied, and rushed down pell-mell, without order, into the deep miry meadow, where they soon found that their horses could scarce trot, much less charge, striving who should be the first to break into the ranks of the insolent islanders. But they moved not, but stood firm, until, when the cavalry were within 200 yards, or point blank arrow shot, old Sir Thomas Erpingham strode forward, on foot, having a truncheon in his hand, between the armies, and casting it high into the air gave the concerted word, "Now strike!" At once the whole front rank of the English stepped forth one pace, with the national hurrah, and drawing their bowstrings to the ear, sent a continued hail of arrows right into the teeth of the advancing squadrons, while the 200 archers, springing up from their ambush on the flank of the charging column, decimated it by their intolerable cross volleys. The battle was half won already, as soon as it commenced. No armor could sustain those dreadful arrow heads, and horse and man went down together, before an enemy with whom they could not come to handy blows. The chargers became restive; the miry meadow was trampled into a bloody bog; the crossbowmen, Picards and Genoese, cut their bowstrings, as an excuse for retreating from under a hail of shot to which they could make no reply; and still the centre and rear, unable to see what was going on in the van, and eager to share in the victory, kept crowding down into the fatal morass, until the whole host was weltering in a mass of inextricable confusion, into which still rained incessant the English grey-goose shafts. At length, seeing that the crisis was arrived, Henry brought out his reserves, his archers casting away their bows and betaking themselves to their bills and leaden mallets, and simultaneously ordered his cavalry to advance on both wings, and, sweeping round the flanks of the enemy, to charge him in the rear. The conflict was stubborn and severe, for the French fought with their accustomed gallantry and spirit; but they were so utterly in disarray, confused horse and foot pell-mell together, that they could make but a blind resistance, and it was no longer a battle but a massacre and a reeling *melee*. Henry himself was so hard beset, that he had his casque shattered on his head, and after slaying two knights, struck down the duke of Alençon with his own hand, and before he could take him to surrender, had the pain to see him killed before his eyes, by his angry archers. At this moment, a band of a few hundred marauders, led by Robinet of Borneville and Isambert of Agincourt, having got into the

rear of the English, and fallen to plundering the tents, a cry arose that they were surrounded, and that the prisoners were rising. These already nearly equalled in number the whole force of the English, and in the moment of panic the word was given, and but too fatally executed, to put the captives to the sword. But the battle, which had lasted between 8 and 4 hours, was won; and so soon as it was possible the lamentable slaughter was stopped; and strange to say, no blame was laid on Henry or the English, by the French knights, who cast all the reproach on the marauders, who had caused the alarm. In this terrible battle, there fell on the French part, the dukes of Alençon, Brabant, and Barre, the high constable, grand master, and high admiral of France, the master of the crossbows, above 120 princes of the blood and nobles, and 8,400 belted knights, esquires, and gentlemen of birth; of the lower ranks there fell only 1,600 men, so little had the French chivalry spared their persons in the shock of battle. Of the English, there fell only the duke of York, the earl of Suffolk, one knight, one esquire, and about 600 men of all ranks and arms. The dukes of Orleans and Bourbon and the high marshal of France, with 1,500 knights and nobles, were taken prisoners, for few escaped from that fatal field, and these noble prisoners languished many a weary year in English prisons; for with a wise, though scarcely a generous policy, Henry refused to hold any to ransom, or to allow his nobles to do so with their own prisoners, so long as he lived. During the remainder of his reign, therefore, France was unable to take any offensive measures against him, while he occupied her fairest provinces, was crowned himself, and had a son born in Paris, destined before his own violent death, to lose all his father's conquests. Like Crecy and Poitiers, Agincourt was a great and marvellous battle, incurred by incredible rashness, approaching to fatuity, on the part of the leader, and won, as all English victories are, by the solid steadiness of the infantry. Fruitless and profitless to England as it was bloody to France, it should be a matter of regret rather than exultation; the French lost no reputation, for they were beaten by the nature of the ground and the force of circumstances; the English gained only empty honor, and the power of returning home, which they had better not have left. One scarce knows whether more to condemn the obstinate, headlong rashness of the Plantagenet princes, in suffering themselves to be compelled into such desperate straits as led to these 8 almost identical battles, or to admire the coolness of the leaders and the steadiness of the men, which extricated them victoriously from circumstances so desperate.

AGINCOURT, JEAN BAPTISTE LOUIS GEORGE SEBASTIEN, archaeologist and numismatist, born of noble family, April, 1780, died September, 1814. He was a farmer-general of the French revenue, under Louis XV., which lucrative appointment is said to have been given by the king in admiration

of his humanity in devoting himself to the education of his two younger brothers and seven young relatives. He was author of "the History of the Arts by their Monuments, from the 4th to the 16th Centuries," 6 vols. fo., illustrated with 825 plates.

AGIO, a term of Italian derivation, first used in Venice and the cities of Italy, to denote the difference per cent. existing between the real and nominal values of money at any place. It is sometimes caused by debasement of the coinage, and sometimes, by abrasion from wear and tear. Out of Italy, the term is used most frequently in Holland, in Hamburg, and in other German cities. The premium or discount on foreign bills of exchange for making remittances from one country to another, is sometimes called agio, although the word is rarely used for that purpose in the English language. In France, silver is the only legal tender; yet as large payments in silver are very inconvenient, the payee often elects to have his debt paid in gold. For this accommodation the payer demands a premium, and this premium is called the agio on gold.

AGIS, a name common to four kings of Sparta, of the Proclid family. The first is a mythical personage.—Agis II., was actively engaged in the Lacedæmonian war.—Agis III., was king of Sparta at the time of Alexander the Great's expedition into Asia. In the absence of Alexander, (B. C. 331,) the Lacedæmonians under Agis made an irruption into Arcadia, and were thence driven back into Lacedæmon with great slaughter by Antipater, the viceroy, whom Alexander had left behind him.—Agis IV., is one of the most beautiful and disinterested characters of antiquity. Having acceded to the throne, B. C. 244, when he was but twenty years of age, he conceived a large and liberal system of political and social change. The privileged class who monopolized all the power of the state, and almost all its wealth, and who were alone entitled to call themselves Spartans, had dwindled down, after centuries of jealous and inflexible exclusiveness, to the incredibly small number of 700 heads of families, of whom not more than 100 were wealthy. As by the laws of Lycurgus, which had been but lately repealed, no Spartan citizen could be possessed of more than 1 lot of land, three-fourths of these 100 wealthy proprietors were women, who were not deemed to be affected by the Lycurgian laws, and in whose hands most of the landed estates had accumulated. Agis himself, his mother and his grandmother, were 3 of the very wealthiest proprietors among the 100 wealthy. His plan was, that the great proprietors, male and female, should give up all their estates above the limit prescribed by Lycurgus, and that this surplusage should be divided in this way: 4,500 estates situated in the districts adjoining the city of Sparta, to be given to the poorer Spartan citizens and the most respectable aliens, and 15,000 estates to be cut out from the outlying portions of Lacedæmon, and bestowed on as many Pericæci, capable of bearing arms; these

Pericæci to be admitted to Spartan citizenship, all debts to be cancelled, and the whole community to start with a fresh score. Acting up to his generous ideas, although he was of rare personal beauty, Agis appeared attired in the habit of a simple Lacedæmonian citizen, and practised the greatest sobriety in his mode of life. He next proceeded to gain over his mother Agesistrata, and his grandmother Archidamia; when he had done this, he persuaded his other relatives and private friends to acquiesce in the enterprise. The majority of the property holders were strongly opposed to this, as it appeared to them, chimerical project, and got the other king, Leonidas, on their side. A public meeting was called, when Agis spoke, and gave up his property in the presence of the multitude. Leonidas was soon after condemned and deposed for having married a stranger, a Persian lady, and resided in a foreign land. The popular feeling was strong against Leonidas, and a plot was laid to assassinate him. Agis generously protected him from the conspirators, and allowed him to leave Sparta unhurt. The Peloponnesians, Achæans, and Spartans, were now compelled to take the field against the half-savage Ætolians, who had made an inroad into Peloponnesus. The discipline and high spirit of Agis's army was the admiration of all the Peloponnesians. No acts of rapine marked their course. Agis himself shared all the hardships of his fellow-soldiers, and made himself as popular in the camp, as he already had made himself in the town-hall. In the mean time Agesilaus, an intriguer, had carried a decree to abolish all debts; and all the bonds and securities, and other acknowledgments of debt, were publicly burned in the market place; but no steps were taken to carry out the original design of Agis in its entirety. Thus many of the rich were ruined and exasperated, and the poorer citizens, as they had not got into possession of the promised landed estates, were not conciliated, but on the contrary exasperated by deferred hope. The conservatives took advantage of this state of the public mind, and made all the ill-feeling recoil upon Agis and his scheme. Leonidas was recalled, and reinstated in power. Agis had to flee to a sanctuary. The conservatives not daring to take his life in a temple, kidnapped him while he stole out to take a bath, and threw him into prison. An impromptu proceeding was gone through in the form of a trial, and he was condemned to death. The ruling party did not dare to wait till evening, because the popular feeling was rising in behalf of the virtuous young prince. He was hurried to the place of execution. Agis observing one of the officers guarding him to be in tears, said to him, "Lament me not; I had sooner die innocent as I am, than live as my murderers will do." When asked if he did not repent of his revolutionary designs, he said, "I shall never repent of having espoused so glorious a cause." He was then put to death. His mother and grandmother hastened to the scene. The

mother was first strangled, and then the grandmother was admitted. She arranged the two bodies of her daughter and grandson, saying, "Thy too great leniency, moderation, and generosity, have been the ruin of thee and me, my son." The executioners then rushed on her and strangled her. The widow of Agis, who loved him tenderly, was forcibly married to Cleomenes, his successor, and instilled into his mind the noble projects of reform and regeneration which Agis had conceived.

AGITATORS, a name anciently given to charioteers, particularly to those employed in the curle games.—Also the title of certain officers appointed by the army during the English revolution, to protect their interests.

AGLAIA, the youngest of the three graces. She was the wife of Vulcan.

AGLAOPHON, a painter of the island of Thasos, flourished about 500 B. C. He was the father and instructor of Polygnotus and Aristophon.

AGLIONBY, JOHN, D. D., a native of Cumberland, educated at Oxford, an erudite Grecian. He was born 1587, and died rector of Islip, near London, in 1610. He was chaplain to James I., and one of the translators of the recognized version of the New Testament into English.

AGNADELLO, a village of Lombardy, 10 miles east of Lodi. In its neighborhood Louis XII. of France, completely defeated the Venetians under Pitigliano and D'Alvionio, May 14, 1509. Here, too, in 1705, the duke of Vendome gained a victory over Prince Eugene.

AGNANO, a remarkable lake in Naples near Pozzuoli. The waters are strongly impregnated with mineral matter, and the lake is possibly the crater of an extinct volcano. Tradition says there was formerly a town here, which was destroyed by an earthquake, and some antiquaries conjecture that it was the fish-pond of Lucullus, who had a villa in the neighborhood. Mosaics and ruins of baths are found. On the shores of the lake are the mineral baths of San Germano, useful in gout, &c.

AGNATES, in law, relations by descent on the father's side. Lawsuits in relation to heirlooms and other family property, require the consent of the agnates. The term is unknown to English common law, but in the Roman civil law, as administered in Germany and Italy, it is of considerable meaning. Under the ancient Roman law, agnates were those whom the civil law included in one and the same family, under the control of one head.

AGNELLO, ANDREA, archbishop of Ravenna in the 9th century, who wrote the history of the prelates of Ravenna, his predecessors.—**GIOVANNI**, a rich Pisan merchant of the 14th century, who by the aid of Visconti, podesta of Milan, overthrew the republican government of his own city, and made himself despot of the same, alleging that he was accomplishing the behests of the Virgin Mary. Sept. 5, 1368, he received from the emperor Charles IV. the title

of doge. On the same day, Agnello broke his thigh by a fall, and the people rose and regained their liberties.

AGNES OF AUSTRIA, daughter of the emperor Albert I., born 1280, died 1354, wife of Andrew III., king of Hungary, the last of the line of Arpad. After her father's murder, she made herself memorable by the remorseless cruelty with which she avenged his death, not only on the murderers but on their families and friends. After she had satiated her vengeance, she founded the abbey of Königshofen; believing that thus she secured his soul and expiated her own atrocities.

AGNES, SAINT, a Christian martyr, of a noble Roman family, who perished in the persecution of Diocletian. Her uncommon beauty had tempted a certain Sempronius, from whose brutality she was saved by a miracle. He was struck blind, and received his sight by her prayers. Her martyrdom is the subject of one of Domenichino's pictures, and Tintoretto has painted the miracle. As early as Constantine, she had been canonized, and a church erected over her remains.

AGNES SOREL, a French lady of the 15th century, the mistress of Charles VII. of France. The incidents of her career have made her a historical personage. So remarkable was her life and conduct in her peculiar position, that she enjoyed the warm friendship of Charles's queen, the virtuous Marie of Anjou, and her influence over Charles was exercised in furtherance of her country's interests. It has been generally asserted, that to her was mainly attributable Charles VII.'s recovery from the lethargic despair into which he had fallen, in the hopeless state of public affairs after the English victories of Henry and his generals. Her right to this patriotism has been disputed by modern critics, who labor to show that she was yet a child at the siege of Orleans in 1428. She died in 1450, and suspicions were entertained against Louis XI. of having poisoned her. She had 8 daughters by the king. Her story is a favorite subject with poets.

AGNESI, MARIA GAETANA, a learned Italian lady, born at Milan, 1718, died 1799. She was the daughter of the professor of mathematics at Bologna. At an early age she spoke Latin with facility, and was also skilled in other dead and living languages. She was in the habit of maintaining theses at her father's house, which he collected and published under the title of *Propositiones Philosophicae*, (Milan, 1731.) Subsequently, her father having fallen sick, she was permitted, at the age of 22, by dispensation of the pope, to take his place as lecturer in the university. She published, when only 20, her *Institutioni Analitiche*, an educational work for the use of youth, on algebra and mathematics. She ended her useful life in a convent.—**MARIA THERESA**, musical composer, sister of the foregoing. She composed the operas of "Sophonisba," "Cyrus in Armenia," and "Nitocris."

AGNEW, SIR ANDREW, Scottish baronet and publicist, born in 1793, at the family seat, Lochnaw castle, Stranraer, Wigtonshire, died in Edinburgh, April 12, 1849. His family were hereditary sheriffs of Wigtonshire for many generations, and received £4,000 as compensation from the British government, when the office was abolished in 1747. The baronetcy, of which Sir Andrew was the 7th representative (he succeeded his grandfather in 1809), was created in 1629, in the 5th year of Charles I. In 1816, Sir Andrew married Magdalena, daughter of Sir David Carnegie, bart., of Southelk. From 1830 to 1837, he represented his native county in parliament, and distinguished himself by annually introducing bills, with very stringent provisions, to secure the better observance of the Sabbath. These attempts at legislation failed, but Sir Andrew, out of parliament, as well as in it, was constant and zealous in his Sabbath observance advocacy. At public meetings, in the newspapers, and by pamphlets, he eagerly urged this principle, and finally succeeded in preventing Sunday travelling on the Edinburgh and Glasgow railroad. He was honored with a public funeral at Edinburgh, interred in the grave next that of Dr. Chalmers, and a subscription was made to erect a memorial over his remains.—Sir Andrew Agnew, his eldest son, formerly a cavalry officer, was elected member of parliament for Wigtonshire in 1857.

AGNEW, JAMES, a general of brigade in the British army during the American revolution, killed at the battle of Germantown, Oct. 4, 1777. He commanded a detachment of troops under Governor Tryon, in his expedition to Danbury, April 26, 1777, and was at the battle of Brandywine, where, though in feeble health and slightly wounded by a cannon ball during the action, he remained at the head of his brigade until the Americans retreated.

AGNOETÆ (Gr. *αἰνοῦται*, to be ignorant of), an ancient sect of heretics. They held that the union of Christ's human and divine nature did not make the former omniscient.

AGNOLO, BACCIO or **BARTOLOMEO**, Italian wood-engraver and architect, born 1460, died 1543. His best works are the Villa Borghese, near Florence, and the campanile of the church of the Santo Spirito in Florence. He first introduced the practice of frontispieces for the windows and doors of private mansions, which before his time had been confined to church architecture. On this account he was severely criticized by his contemporaries, but he persisted, and his practice became established. As a wood engraver, his studio was visited by Michael Angelo, Raphael, and his great contemporaries. He was engaged to complete the cupola of the metropolitan church of Santa Maria del Fiore, one of Brunelleschi's productions, but Michael Angelo opposed his design, and the work was left unfinished.

AGNOMEN, a name sometimes added to the other three names of a Roman citizen, as a mark of distinction, generally on account of

some remarkable achievement. Thus, Publius Cornelius Scipio was called Africanus, on account of his exploits in Africa.

AGNONE, a Neapolitan town in the province of Molise. It is built on a hill, 20 miles N. W. of Campo Basso, and is said to produce copper wares superior to any in the kingdom. Population 7,000.

AGNUS DEI, in the Roman Catholic church, a cake of wax, bearing the image of a lamb holding the banner of the cross. Being blessed by the pope, they are worn by many Catholics, and believed to drive away bad spirits and preserve their wearers from harm.—Also, a name sometimes given to that part of the mass where the priest repeats a prayer beginning with these words.

AGOA DE PAO, a mountain peak near the centre of the island of St. Michael, Azores, 8,060 feet high.—A village of 8,000 inhabitants, on the S. side of the same island, 15 miles to the E. of Ponta Delgada.

AGOBARD, archbishop of Lyons in the 9th century. He supported the revolt of Lothaire against Louis le Debonnaire, was deposed at Thionville, but afterwards restored on promise of better behavior. He died 840. His works, edited by Baluze in 1666, contain reasonings against image-worship, witchcraft, and duelling.

AGOGEBIC, a lake 2 miles wide and 15 miles long, the northern end of which is about 12 miles south of the southern shore of Lake Superior, and near the extreme western end of the northern peninsula of the state of Michigan. The west branch of the Ontonagon river is its outlet. The hills of the trap range, in which the copper mines are found, extend across the northern edge of the lake, but the lake itself is in the sandstone formation, its southern end reaching across it to the granite. The waters of this lake possess in a high degree the purity and clearness of these northern reservoirs, and abound with fine speckled trout.

AGONISTOI, a sect of ascetics, who inhabited the northern part of Africa in the 4th century. They were opposed to labor, and to marriage as well as to monasticism, which was then just beginning to gain ground. They were mostly rough, uneducated peasants, who begged among the inhabitants, destroying their heathen idols, and regardless of the martyrdom which was frequently their reward. They eagerly sought a voluntary death by means of fire or water. Upon the first appearance of the Vandals the sect was totally extinguished.

AGONY (Gr. *αἰών*, strife or wrestling), a term applied to the sufferings of the spirit wrestling with disease, and disability of the body, in the state which immediately precedes death. The agony of Christ upon the cross, dying a slow death from rabid violence among the Jews, and barbarous wounds inflicted by the Roman soldiers, to drain away the blood of life, and torture all the nerves of sense, and all the feelings of the soul within the body, is the highest illustration of the meaning of the word; al-

though it is applied to every case of difficult departure from this life, with suffering and wrestling to retain the body as a habitation for the soul; or to get loose from it, as from a prison which is dark and loathsome. The phenomena of agony vary with the diversity of causes which result in death. In some cases, a complete prostration, and apparent calm precede the final separation of soul and body; in others, an apparent struggle sets in between all the forces of the physical and spiritual life, and violent agitation continues for a time, until it terminates in death. Sometimes the moribund has lost all consciousness long before the respiration ceases; while in other instances, the mind retains its powers of thought and consciousness up to the last moment of earthly existence.—When the spirit wrestles long in agony, the body is half a corpse before the separation is complete. The face is pale and sallow; the skin is wrinkled; the eyes are dim and hollow; the nose contracted and discolored; the temples and the ears shrink; a feverish cold sweat trickles from the forehead and the limbs; the sphincters lose their tone, the nerves have no control, and involuntary alvine and urinary evacuations occur; respiration becomes hoarse, and gradually more and more laborious; until, at last, with gasping and rattling noise it stops, and all is still as death. Sometimes this state of agony lasts for days; at others, a few hours only, or some minutes. When once it has commenced there is no longer any hope of saving the life of the patient; medical aid is useless; and spiritual consolation takes the place of the physician.

AGOONA, a small state in the kingdom of Ashantee, on the Gold Coast, Western Africa, lying between lat. 5° 25' and 5° 45' N. long. 10° and 40' W., or about 20 by 80 miles in extent. The Danish settlement of Christiansborg, the British settlement of Fort James, and the Dutch settlement of Oreevecoeur, are in this state.

AGOSTA, a seaport town in the province of Catania, E. coast of Sicily, 14 miles N. of Syracuse. It is built on a low peninsula in the Mediterranean, and in consequence of its liability to earthquakes, by one of which it was almost totally destroyed with one-third of its inhabitants, in 1693, the houses are built low, and hence the town has a mean, stunted appearance. On the west side of the peninsula it has a capital harbor, said to be the best in Sicily. On the land side, the town is slightly fortified, and towards the sea it is defended by three forts, built on three small islands at the entrance of the port. The knights of Malta at one time had extensive magazines at this port. Agosta has a population of 15,000, and a trade in wine, flax, olive oil, salt, honey, and sardines. The remarkable caves of Timpa are near the town.

AGOSTINI, **LEONARDO**, of Sienna, a celebrated Italian antiquary of the 17th century. He was named inspector of antiquities by Pope Alexander VII.—**MIEUXI**, a Spanish agriculturist, born about 1560, near Girona, died

about 1680. He published his work, *Libro de los segretos de agricultura, casa de campo y pastoril*, at first in the Catalan dialect, but the second edition in pure Castilian. At the end of his book is a table of agricultural terms, in 6 languages.

AGOSTINO, **ANGELO** or **ANGELLO**, two brothers, sculptors and architects, born at Sienna, in Italy, about the middle of the 18th century. Educated in their profession by the Pisan, Giovanni, they were named architects of their native city, where they constructed many edifices for secular and religious uses. At Orvieto also they executed the tomb of Guido, bishop of Arezzo, one of the finest architectural monuments of the 14th century.

AGOULT, **MARIE DE FLAVIGNY**, comtesse d', French authoress, better known by the *nom de plume* of "Daniel Stern," under which her most popular literary essays were published, born at Frankfort-on-the-Main, about 1800. She was brought up at a convent of the Sacred Heart, and married, in 1827, the Count d'Agoult, belonging, as well as herself, to the best French nobility. She had been married a few years when she met Liszt, the distinguished pianist, who inspired her at once with a most extravagant passion. Carried away by her love, as well as by her romantic turn of mind, she left her husband and children, and followed the artist, then in the fulness of his triumph. Such a union, however, could not last long; they separated, and Madame d'Agoult found herself in a most precarious condition. Then it was that she sought to make a living as a writer, and soon became one of the celebrities of the French press. She published *Herod*, a novel, 1841; a series of artistical articles, entitled the *Salon*, 1842-48; *Etudes politiques sur l'Allemagne*, 1847; *Lettres republicaines*, 1848; *Esquisses morales et politiques*, 1849; *Histoire de la revolution de 1848*, Paris, 1850. After leading the life of a writer for some years, her friends procured a reconciliation between her and M. d'Agoult, and she gradually regained in Parisian society the standing which she had lost by her rash adventure. At the present time, her saloon has become one of the most fashionable and agreeable centres of attraction in Paris; and although "Daniel Stern" has forsaken his pen, the Comtesse d'Agoult remains one of the literary stars of modern France. She has just finished (1857) a drama, not intended for the stage, the subject of which is taken from the life of the great French heroine Joan of Arc.

AGOUTI (*dasyprocta* of Illiger; *akloromys* of Ouvier), a genus of animals belonging to the class *mammalia*, order *rodentia*, distinguished principally by their feet and toes, which are furnished with powerful claws, similar to those of the burrowing animals. The agoutis, however, neither burrow nor climb, roaming at large in the forests, and sheltering themselves equally against pursuit and for the purpose of bringing forth their young, behind or among any casual defences they may find.

such as fallen timber, piles of stones, or the cavities of hollow trees. They use their fore paws for the purpose of holding their food, sitting erect on their haunches while eating, and assuming the same attitude when looking about them or listening, in alarm or surprise. The agouti is of nearly the size of a large hare, and like that animal, has its hind legs longer than the fore, but not so disproportionately, for which reason it stands more erect. The common agouti, *D. aguti*, measures about 1 foot 8 inches in length, and stands 11 inches high at the croup. Its head resembles that of the rabbit; its face is convex; its nose swollen; its upper lip cleft; its ears round and naked; its eyes large; its upper jaw longer than the lower; and its tail a mere naked stump. The hairs on the upper parts are annulated alternately with black, brown, and yellow, producing a general appearance of being speckled, on the upper parts, with green and yellow. The croup is golden yellow; the breast, belly, and inner part of the arms and thighs straw color; the moustaches black. The hair, on the fore parts, is about an inch long; that on the rump nearly four times that length, whence its Latin generic name; and is everywhere, except on the breast and belly, of a stiff and bristly character. These animals are peculiar to the Antilles and Bahama islands, and to the northern parts of South America. On the islands at the time of their first discovery, they were the largest known quadrupeds, and found in such countless swarms as to constitute the principal food of the dense Indian population. It is asserted and denied, by different authors, that they breed many times in each year, and produce many young at each birth; but the great numbers in which they are still found in all the hotter parts of America, in spite of their destruction by the small carnivora, and by the Indian races, together with their affinity to the rabbit and cavy, seem to countenance the affirmative proposition. Their flesh is white and tender, is cooked like that of the hare or rabbit, and is held in high esteem. The other varieties of this animal, which it must here suffice to name, are, the black or crested agouti, *D. cristata*, of Surinam, Guiana, and Brazil; the acouchy, or olive agouti, *D. acouchi*, of the W. India isles, Guiana, and the northern parts of Brazil; the white-toothed agouti, *D. roconata*, of the Amazon; the black-rumped agouti, *D. prymnolopha*; the sooty agouti, *D. fuliginosa*, of Northern Brazil, easily distinguished by its black color and great size; and, lastly, the azara's agouti, *D. azara*, of Paraguay, Bolivia, and the south of Brazil. They are perfectly harmless, and appear to form a link between the families of the rabbit and cavy or Guinea pig.

AGOWS, an Abyssinian nation, composed of 8 different tribes, occupying respectively the fertile country west of the sources of the Blue Nile in Amhara; the district on the east side of the Tecazze, in Tigré; and another tract in Tigré on the north bank of the same river.

AGRA, a government, province, district, and city of Hindostan. The government embraces all the N. W. provinces of Bengal, among which are Benares, Allahabad, Bundelound, Agra, Delhi, and Meerut; has an area of more than 100,000 square miles, and a population of upward of 25,000,000. This wide territory was in 1838 reunited to the Bengal presidency, after having for a short time been a distinct presidency; it still, however, forms a separate, though not independent government, being administered by a lieutenant-governor, who resides in the city of Agra, and whose authority is subject to that of the governor of Bengal.—The province of Agra lies nearly in the centre of the government of the same name, between lat. 25° and 28° N. It is about 250 miles long, and 180 broad, and its population is estimated at 6,000,000, the great mass of whom are Hindoos.—The district of Agra is one of the 5 districts into which the province is subdivided.—The city of Agra, one of the keys of western India, capital of the province of the same name, is situated in lat. 27° 11' N. and long. 78° E., 115 miles S. S. E. from Delhi, 680 miles N. N. E. from Bombay, and 740 miles W. N. W. from Calcutta. Its population is estimated at nearly 100,000. It is a seat of great traffic, is inhabited by many wealthy natives, and has splendid remains of Indian art. It was a central and important position in the rebellion of the Bengal army in 1857.

AGRAM, ZAGRAB, or ZAGRABIA, capital of Croatia, lat. 45° 49' N. long. 16° 1' E. Population 15,000. It is situated at about a mile from the river Saava. It is the residence of the ban of Croatia. It carries on an important trade in salt, tobacco, grain, and wines. The inhabitants comprise a large proportion of Greeks. It is in railway communication with Vienna and Trieste.

AGRAPHO, a part of the Pindus mountain range between Thessaly and Epirus, in Greece.

AGRARIAN LAWS were framed at various times by the Romans to regulate the *ager publicus*, or public domain. In the first epoch of the foundation of Rome, when the city had not yet extended beyond the Palatinian hill, the whole soil of the state was *ager publicus*, or undivided public property; and, from the state, from the *populus*, consisting exclusively of citizens, every citizen received a share for his private use. In principle all the land was, therefore, *ager publicus*, and the citizen could only acquire possession as tenant at will of the state; though, in course of time, the descendants of the original founders, or the patricians, transformed these primitive concessions into an absolute right, called in the Roman law *de jure quiritio*. Still the principle remained, and was recognized during the whole epoch of the republic, that all lands and booty acquired by conquest were acquired for the state, and could only become the property of individuals through the cession to them of the rights of the state. As conquest increased the *ager publicus*, and the class of the plebeians was formed, the

Roman people gave them lands in the *ager publicus*, as private property, on condition of their paying a tribute, and undertaking other public servitudes; but the patricians always preserved their ancient right, of receiving in possession and using parts of the public domain, on paying to the public treasury a tithe of its product. From the first epoch of Roman society, lands thus held could pass as an inheritance to children, and were even sold under this precarious tenure, as, in principle, the state could always resume their possession. These public lands were also, on their conquest, often transformed into common pasturage. Such lands had various technical names, as *occupati*, *occupatori*, *concessi*, *aristinales*, &c.; but the general name was that of *possessiones*, and the payment or tithe given to the state for their use, was called *fructus* or *vectigal*. The possession of all such lands by individuals was permissive, and differed wholly from the absolute right of property, by which each Roman citizen, whether an original patrician, or one of the plebeians, who were first admitted to private and then to public rights, held landed property by the various titles and denominations known in the Roman law. But the patricians, the original shareholders in the public domain, became, by long use, accustomed to consider their grants as absolute property, especially as they had improved them in various ways; and accordingly they often refused to pay the tithe due to the treasury. In the early period of the republic, previous to the twelve tables, Spurius Cassius, a patrician, being appointed consul, proposed a law, that some parts of the public domain, long before conquered, but occupied by the patricians, should be surrendered to the state, and assigned to the necessitous citizens. The patricians resisted it, and the law remained a dead letter. This was the first agrarian law in chronological order. But the patricians not only prevented new divisions of the public lands, but by violence or usury acquired those of the plebeians. This led to agitation for a revival of the law of Spurius Cassius, which the celebrated decemvir, Appius Claudius, strongly opposed. Next, the invasion of the Gauls, under Brennus, ruined the numerous small free tenants and freeholders, and obliged them to sell their landed property to the wealthy patricians. Those among the small freeholds which were not thus absorbed, were overwhelmed by the surrounding large estates. The keeping of large flocks of cattle, ruined the *saltus publici*, or common pasturage, and, in fact, excluded the small farmers from them. This abuse occasioned the publication of the Licinian law, so called from Licinius its originator. This law is considered as forming the basis, and containing the essence of the agrarian idea. The technical name of this law was *de modo agri*. It prescribed, under a penalty of heavy fines, that no one should possess more than 500 *jugera*—about 800 acres of the public domain; and that no one should send to graze on the public pastures more than 100 large,

or 500 small animals. This law was put in force for a brief period, after which it was neglected for nearly 2 centuries, when it was renewed by Tiberius Gracchus with some additions and modifications in favor of the wealthy, who were mostly patricians. Any one having 1 or 2 sons could hold from 250 to 500 *jugera* in the public domain above his original right, as established by the Licinian law. The attempt to execute these laws occasioned the tragical end of the two Gracchi. In succeeding times, an agrarian law was mooted by a certain Saturninus, having for its object the distribution of lands conquered in Cisalpine Gaul. Another was proposed by Drusus to distribute all the conquered lands among the poor; and in the time of Cicero, Servilius Rullus proposed that the public domains out of Italy conquered by Pompey, should be sold, and out of the proceeds lands bought in Italy for needy citizens. Not one of all the Roman agrarian laws was ever executed, and not one of them had that confiscatory or leveling character, so frequently attributed to them. Not one of these laws aimed at the equal division of landed property owned by individuals in their own absolute right, or intended any limitation upon such ownership. Later times have, however, given this meaning to the name of agrarian laws, and made them a scarecrow for the rich. During the French revolution, this aspect of the agrarian law was much discussed by revolutionary and social theorists in France, and in other European countries, as well as in the United States.

AGREDA, MARIA DE, a Franciscan nun, lady superior of the convent of the Immaculate Conception at Agreda, in Spain, born in that town 1602, died there May 24, 1665. She claimed to receive revelations direct from Heaven. At the command of God, who appeared to her in a dream, as she said, she undertook to write the life of the Virgin Mary. It was completed under the title *Civitas Dei mystica*. Every word, according to her attestation, had been written under inspiration. The reading of it was forbidden at Rome, and the Sorbonne, at Paris censured the individual who translated a portion into French. Bossuet exposed the indecencies of the work.

AGREEB, MOUNT, a remarkable conical mountain in central Egypt, in lat. 28° 12' N. long. 32° 42' E. It is situated about 16 miles inland from the gulf of Suez, and its height is so great that it can be seen at a distance of 100 miles.

AGREEMENT, in law, a term synonymous with contract, although agreement usually signifies a written contract. The essential part of an agreement is that it be mutual, or the assent of both parties may be expressed, or may be gathered from attendant circumstances. The implied assent is a fruitful source of litigation. All agreements are not necessarily in writing, although by the statute of frauds, agreements for the purchase of lands, or for the purchase of goods exceeding a certain value, must be in writ-

ing; this last clause has received a very latitudinarian interpretation. A note bought and sold by a broker, or the entry in an auctioneer's sale book, has been adjudged to be a sufficient compliance with the statute. The great majority of buying and selling transactions which take place in society, come under the law term of contract. As M. Jourdain had been speaking prose all his life, so a lady purchasing a pair of gloves is party to an implied contract. Agreements with an illegal or immoral object are void in law. All agreements procured by threats or violence, or founded on fraud, are voidable; legal fraud has, however, a much less limited signification than moral fraud. Agreements may be enforced either by suit or specific performance where an act remains to be done: or by a suit for the payment of money in the nature of damages, for the breach of its terms. The French law of contract rests on the same general principles as the English law.

AGRELL, OLOF, born in the province of Scania, Sweden, in 1755, died at Gottenburg, 1831. He graduated at Lund in 1775, and was appointed secretary of the Swedish consulate in Morocco in 1789, where he remained until 1791, and vice consul at Algiers in 1799. His *Bref om Morocco* (Stockholm, 1796), and *Y herligare Bref om Morocco* (Stockholm, 1807), are pleasant and interesting books of travel.

AGRICOLA, CNEIUS JULIUS, a Roman general born at Forum Julii (the modern Fréjus) in Narbonensian Gaul, A. D. 88, died Sept. 1, 93. He received his education at Massilia (Marseilles), and his first military training was under Suetonius, in Britain. He passed through the minor offices of the state with credit, and was quaestor in Asia. On Vespasian's election by his legions, Agricola was one of the first to acknowledge him, and Vespasian in gratitude appointed him governor of Aquitania (the south of France). He was next made consul, and subsequently governor of Britain. During his viceroyalty he conquered Wales, and the Druidical island of Anglesea, built a wall from the Clyde to the Forth, to keep off the incursions of the northern barbarians, and defeated the British Galgacus in Scotland, and thus brought Britain under complete subjection. The Roman fleet now for the first time sailed round the whole island. He was recalled by Domitian and died. Domitian was suspected of having had him taken off, out of jealousy of his military reputation and popularity. His daughter Domitia married Tacitus, the great historian, who wrote his life.

AGRICOLA. I. GEORG, German philosopher, born at Glauchau, March, 1490, died at Chemnitz, in Saxony, Nov. 1558. His name was Bauer (peasant), whence he adopted the Latin equivalent Agricola. He was at first rector of a school in Zwickau, afterwards studied medicine at Leipsic, and in 1527 practised physic. He devoted himself to metallurgical pursuits, and in 1531, on the invitation of the elector Maurice, settled at

Chemnitz. He attempted to reduce mineralogy and metallurgy to a science, and introduced considerable improvements in the previously rude art of mining. He first made chemical analyses of the different earths. His mind was deeply tinged with the superstitions of his age. He became a Catholic before his death, and his body was refused burial. He wrote *De re metallica, De ortu et causis subterraneorum, De mensuris et ponderibus Romanis atque Græcis*. II. JOHANNES, born at Eisleben, hence called Magister Islebius, born April, 1492, died at Berlin, Sept. 1556. He was one of the most active men engaged in the Reformation. He studied at Wittenberg and Leipsic, acquired the friendship and esteem of Luther, who sent him to Frankfurt on the Main, for the purpose of instituting Protestant worship there. On his return he was parish priest of Eisleben, and here he commenced that Antinomian controversy which he subsequently renewed from his professorial chair in Wittenberg, and for which he was dismissed from that university. He next went to Berlin, where he became chaplain and general superintendent to the elector of Brandenburg. He wrote several theological works, with an account of the common German proverbs. III. JOHANN FRIEDRICH, German musician and composer, 1720 to 1774. He studied music under Sebastian Bach, and was chapel master of Frederic the Great. He was husband of the celebrated vocalist Mad. Molteni. He wrote several operas, among them "Iphigenia in Tauris." He also edited a German edition of Tosis' "Art of Singing." IV. RUDOLF, historian, born in Gröningen, in 1442, died at Heidelberg, in 1495. He became one of the most learned men of his times, and the friend of Erasmus and Bayle, both of whom speak in the highest terms of his erudition. He travelled in France and Italy, and won the esteem and patronage of Hercules d'Est, duke of Ferrara. He was, on his return, chosen professor of philosophy, at the university of Heidelberg. He wrote some historical works, which were published at Cologne in 1539, and also some miscellaneous works, the most remarkable of which, perhaps, is an essay entitled *Tractatus de inventionis dialectica*, in which he devotes considerable space to the discussion of the ability of deaf mutes to acquire such knowledge of language as to be able to converse with others by writing. He first introduced the study of Greek into Germany, and gave lectures on Greek literature at Worms and Heidelberg.

AGRICULTURAL CHEMISTRY is properly the study of the chemical relations of all substances which are concerned in agricultural production. It is intimately connected with technical chemistry, to which belongs the conversion of raw natural products into manufactured articles. The whole natural science of vegetable and animal production is usually called agricultural chemistry, although it includes much of physics, meteorology, vegetable and animal physiology, and geology. It is, in fact, impos-

sible to separate these naturally associated subjects, without falling into the gravest errors; and hence those late works which give the justest view of the chemistry of agriculture, are not strictly treatises on agricultural chemistry. In all time philosophic minds have been attracted by the mysteries of vegetation, and have sought to explain them; but it is only since the beginning of the present century, since all the physical sciences have been so wonderfully developed, that it has been possible to form any adequate notion of what is involved in the processes of vegetable nutrition. The object of agriculture is to develop from the soil as large a quantity as possible of useful vegetable products; or indirectly, of animal products. To assist in this, agricultural chemistry must inquire, in the first place, into the composition of the plant and animal. It finds, accordingly, that all vegetable and animal substances contain a variable, usually large proportion of water, which is essential to their living existence, but may be separated from them by a moderate heat, without otherwise affecting their chemical composition. At a high temperature, dry animal or vegetable tissues are resolved into two portions, one of which passes into the air as volatile gases or vapors; and another, which is indestructible by heat, and remains behind as ashes. In most vegetable and animal substances, the combustible, or as it is often called organic part, forms 90 to 99 per cent. of the whole dry matter; the proportion of inorganic substances (ash) being relatively small. The organic matter, so called from its organic structure, mainly consists of four ultimate elements, viz.: carbon, oxygen, hydrogen, and nitrogen. These simple bodies are united together in the plant and animal, into thousands of combinations, the extended study of which belongs to organic chemistry. Most agricultural products, however, consist chiefly of but a few of these combinations or proximate elements. These may be specified under four classes. 1. The oils and resins, including wax. 2. Cellulose (cell-tissue, woody-fibre); starch; the sugars, cane and grape; the gums, arabine, bassorine, dextrine (starch-gums). 3. Pectose (the pulp of green fruits), and its derivatives. 4. The nitrogenous or sanguineous* principles: viz., albumen, casein (legumin, avenin, emulsin), and fibrin (gluten). The first three groups are composed exclusively of carbon, hydrogen, and oxygen (some of the oils, of carbon and hydrogen only), while all the members of the fourth group contain 15 to 18 per cent. of nitrogen, most of them small quantities of sulphur, and phosphorus also, in addition to the three elements above named. One of the most important facts in the chemical history of these bodies, which are the ground-work of all vegetable and animal tissues, is that the various members of each group are capable of easy transformation into the other members.

Many of these transformations we know to take place in nature. We know that the bee has the power to convert sugar into wax; that domestic animals convert starch, cellulose, and sugar, into fat; that, in general, carnivorous animals convert all the nitrogenous principles we have mentioned, first into the albumen and fibrin of their blood, and thence into all their various solid nitrogenous tissues. Many of these changes we can produce artificially. Thus cellulose (saw dust) may be made to pass into dextrine, and finally into grape sugar, by simple boiling with a dilute acid. Starch more readily undergoes the same transformations. Fibrin, exposed to the air a few days in warm weather, is converted into a liquid, which on heating, yields coagulated albumen, and what has not been affected by heat yields another coagulum with acid, having the characters of casein. This readiness of transformation is doubtless connected with their similarity or identity of composition, and serves to explain many interesting changes that occur within plants and animals, and to throw especial light on the nutrition of the latter.—The continuation of our subject requires a glance at the structure and physiology of the plant. All the innumerable vegetable forms are but aggregations of one simple structure—the vegetable cell. In its most elementary condition, it is a microscopic vesicle or bag of cellulose, lined with a membrane of nitrogenous matter (albumen, &c.), and filled with a liquid. By change of form, increase of number, elaboration or secretion of other substances in these cells, all the types of vegetable organism are produced. Elongated cells, which become choked with woody matter, form the trunks of trees; cells filled with starch constitute the bulk of the potato tuber; cells containing scarcely any thing but vegetable casein, make up the seeds of the leguminous plants, &c. The vegetable cell possesses the power of indefinite multiplication, and the new cells as they form, are modified into the most various organs, according to external circumstances, or according to the inherent direction which they have towards the function they are destined to fulfil.—The aggregate of cells which is called a plant, has roots which penetrate the soil, and stems and leaves which are spread in the air. Both roots and foliage expose a large surface to the medium they exist in. The whole growing part of the plant is a highly porous substance, as easily penetrable by air as a sieve, and a highly hygroscopic substance, absorbing and retaining the vapor of water from the air or soil with great force and obstinacy. When a vegetable is destroyed by burning, it is mostly resolved into air. On the other hand, when it is formed by growth, its substance is mostly derived from air.—The atmosphere which perpetually bathes and penetrates the leaves of plants, supplies them with carbon, hydrogen, nitrogen, and oxygen. The atmospheric source of carbon is carbonic acid. This gas is a constant ingredient of the atmos-

* *Blood-producing*; so called from the function of these bodies in animal nutrition.

phere to the extent of $\frac{1}{3378}$ of the volume of the latter. It is rapidly absorbed by the leaves of growing plants under the influence of sun-light, and undergoes decomposition in the vegetable cells, carbon being retained and assimilated, while the oxygen is set free, wholly or in part, and exhales from the leaves. Water, which always exists in the atmosphere in the state of vapor, is an abundant source of both oxygen and hydrogen. Ammonia, a compound of hydrogen and nitrogen, is the chief source of nitrogen to the plant. It is ever present in the atmosphere in the form of carbonate, though in exceedingly small quantity. Nitric acid, which is formed by the oxydation of ammonia, is equally a source of nitrogen. The plant being fixed and at rest, its food must necessarily be in perpetual motion around the organs destined to take it up. The atmospheric food is kept in motion, not only by the winds which are perpetually intermingling the air of all parts of the globe, but more effectually by a silent, yet ever active agency—the osmotic force (exomose and endomose). When two or more gases of unequal density are brought in contact, in a confined space, they will gradually diffuse into each other, until they form a homogeneous mixture. If into a mixture of gases, any solid or liquid body be introduced, which can combine with and remove one of the gases, it first takes up those particles of this gas which are in its immediate vicinity, but as fast as the uniformity of the mixture is thus disturbed, the absorbable gas diffuses into the space which has become void of it; and as new portions are removed, new ones are presented, until the whole is absorbed. It is a fact, that all the forms of plant food are soluble in water. In virtue of these physical laws, it is plain that the tissues of a growing plant must be constantly surrounded with water, and with carbonic acid and ammonia dissolved in this water; and as these are removed by the assimilating processes of the vegetable, they are restored by osmotic diffusion, so long as the atmospheric supply suffices.—The ash of agricultural plants consists of the phosphates, sulphates, silicates, and carbonates of potash, soda, lime, and magnesia, with small quantities of oxide of iron and manganese, and alkaline chlorides. Other bodies, as alumina, copper, and zinc, are found in some kinds of land plants. The living plant contains sulphur (and perhaps phosphorus) in a state of organic combination, in the various nitrogenous principles, or in sulphurized oils. On burning these compounds, sulphuric and phosphoric acid result. A share of the potash, soda, lime, and magnesia, are combined with vegetable acid (oxalic, tartaric, malic), in the living plants, but these compounds are converted into carbonates by burning. Silica exists, probably in the uncombined state in many cases, as in the bamboo (tabasheer), stalks of grasses and scouring rush; but in burning, it combines with potash lime, &c., so that it is found as a silicate in the ash.—That these ingredients of

the ash are indispensable to the development of vegetation, is proved not only by their invariable occurrence in normally developed plants, but by direct, synthetical experiments. The cereal grains, for example, will not mature in a soil which is deficient in any one of the following substances, viz.: potash, soda, lime, magnesia, oxide of iron, oxide of manganese, silica, sulphuric acid, phosphoric acid, chlorine. These kinds of plant-food are all derived from the soil, and enter the plant through its roots. The medium of their transmission into the vegetable organism is *water*, which is assisted in its solvent action by carbonic acid and ammonia. The same law of osmotic diffusion, which accumulates the gaseous food of the plant in the tissues of the leaves, keeps up a constant supply of food from the soil. Evaporation from the surface of the plant (foliage and stems) constantly removes from the plant a portion of the water which the cells contain. Capillary action restores this waste of water, bringing up from the soil beneath, a fresh supply, which always contains mineral matters in solution. The vague ideas of the older vegetable physiologists, according to which there is a constant circulation of sap in plants, an upward and a downward flow—the sap ascending in the outer wood to the leaves, there being elaborated, and returning through the inner bark to the roots, depositing new matter on its way, must be noticed here, as an exploded, but still oft-repeated error. There is no evidence that there exists any but an upward and outward current—a current toward the vaporizing surfaces. The periodical accumulation of sap in leafless trees, is an entirely different phenomenon from the usual upward flow which goes on in foliated plants. Probably there is no current of sap upward from the soil, in the absence of leaves, but a formation of liquid water, and carbonic acid gas within the cells of the tree, arising from certain chemical transformations not yet much studied. The gas accumulates in the cells to such an extent, that when an incision is made whereby the pressure is relieved in one direction, the expansion of the elastic and confined air forces out the sap before it, just as a ball is driven from an air gun.—The amount of ash and the proportion of its ingredients is different in different classes of plants, and in the various parts of the same plant. As a general rule, the exterior or terminal parts of plants, as the bark, leaves, and chaff or fruit envelopes, give the most ash, 7 to 28 per cent.; while the wood of trees is poorest, yielding but $\frac{1}{4}$ to 8 per cent. The same organ contains different quantities of mineral matters at different stages of its growth. Doubtless, part of the substances which we find in the ash of a mature plant, have finished their active functions, and have been secreted as waste matters. Doubtless, too, a part of the ash is accidental, not being necessary to, or employed by the plant, but having entered the vegetable circulation merely from being dissolved in the water, which the plant has absorbed. For these rea-

sons, we find that there is often little agreement between the numerous analyses which have been executed on the ashes of the same species or even variety of plant, its composition being to a certain extent influenced by the kind of soil in which it grows. Yet there is a general uniformity of composition, and it is undoubtedly true that the organization of the elements, carbon, hydrogen, oxygen, and nitrogen into the cell-tissues and their contents, requires the coöperation of the ingredients of the ash, and that the relation between them is quantitative and definite, though, from the complexity of the plant and from the accidents before alluded to, we may never be able to determine it accurately.—The atmosphere is invariable in composition, and furnishes supplies of carbon, nitrogen, oxygen, and hydrogen (water, carbonic acid, and ammonia), in excess beyond what the natural vegetation of any country needs. The soil is exceedingly variable in composition. When it can supply sufficient quantities of ash-ingredients, it will produce most of the plants indigenous to its locality, in a tolerable degree of abundance. It then is fertile. When there is a deficiency of ash ingredients in available form, or the absence of any one of them, the soil is barren. There is an important difference between natural spontaneous growth, and artificial forced production. This distinction is well grounded, though it must not be insisted on too strongly, nor be carried too far. Natural growth (in general) is slow. Agricultural production,—cultivated growth,—is rapid. For the former, natural supplies are sufficient; for the latter, artificial supplies must be provided. For the former, the supplies of atmospheric food are in excess compared to those of ash ingredients yielded by the soil (telluric food), so that in forests and prairies, the former accumulate on the surface of the soil as dead foliage, which in its decay becomes a telluric source of atmospheric food. In the latter the reverse most usually occurs, so that the organic matter of the soil diminishes and must be renewed by manures. To repeat, in artificial growth (intensive culture), the soil is made to perform not only its natural function of furnishing ash ingredients, but to this is superadded a part of the office naturally left to the atmosphere, viz.: the supply of carbonic acid and ammonia.—The chemical characters of the soil which adapt it to the support of vegetation, may be appropriately noticed here. Soils consist of the more or less comminuted fragments of rocks, mixed with certain products of their chemical decomposition, and with some organic matter—the *debris* of vegetation that has grown upon them. The composition of the soil varies exceedingly according to the rocks from which it originates. It is rare that large tracts of soil are exclusively derived from the rocks that now underlie them. Most of the soils of our northern and middle states are partly composed of materials transported from the far north during what geologists

term the drift period. The soils of valleys are constantly enriched from the rocks of surrounding hills, so that the composition of soils is thus more uniform in a general sense than it otherwise could be. We constantly meet, however, with limited areas having soils of peculiar characters. We find beds of sand, gravel, clay, marl, and peat or muck. The mechanically coarser parts of soil, the gravel and sand, consist of the still undecomposed fragments of the rocks from which the soil has been formed. A part of the finest (impalpable) portion of every productive soil is usually made up of clay, which is a product of the chemical decomposition of certain minerals, and which possesses properties of the highest moment in agriculture. Under the general name *humus* is comprehended the organic matter of the soil which has resulted from the partial decay of previous generations of plants.—The mechanical texture and other physical characters of the soil have a controlling influence on its fertility. Unless the soil be permeable by the roots of plants, and preserve the proper degrees of warmth and moisture, vegetation cannot attain its maximum development, no matter how favorable may be its chemical composition.—Assuming then that the soil is physically adapted for a cultivated vegetation, its fertility depends upon its furnishing the growing plant with continuous and abundant supplies of the different bodies that have been named as the elements of vegetable nutrition. The quantity of ash-ingredients that the heaviest crop removes from a soil in one or in many years, is small, compared with the whole weight of the soil taken to such a depth as is penetrated by the roots of plants. In average crops of the usually cultivated plants, those portions which are removed from the field as the valuable part of the crops, do not carry off more than 200 to 600 lbs. of ash-ingredients per acre, yearly, while the soil taken to the depth of 1 foot, weighs 3 to 4 millions of pounds per acre. That part of the soil which is soluble in the water of rain, represents its available plant-food. Saussure and Hales experimenting independently, found that a sunflower exhaled from its foliage during 4 months of growth, not less than 280 lbs. of water. Since 10,000 plants can be set to the acre, it follows, that from an acre of sunflowers, 2,800,000 lbs. of water are exhaled in one season. Similarly large quantities of water pass through the vegetation of every acre of highly cultivated ground. It is only needful, then, that this water should contain a few thousandths of ash-ingredients in solution, in order to supply the mineral matters in any average crop, since even root crops, e. g., beets, remove but about 600 lbs. of these substances from the acre. In cultivated soils, there is a constant removal of available ash-ingredients, both by the harvests that are taken off, and by the rains which soak through or run over them. In a productive soil, there is a constant renewal of

available plant-food, by the mechanical and chemical disintegration of the insoluble portions) the pulverization of the soil by the operations of tillage, by the alternate contractions and expansions of water (frost), and by the affinities of oxygen and carbonic acid. In a few rare soils, the disintegrating and solvent processes transpire so rapidly (act on such finely divided or easily decomposable materials), that they always present a surplus of food to the plant. Such are certain soils of southern Russia (Tscherno-sem or black earth), and of the Scioto valley, Ohio. They yield successive crops for many years without manure. In most cases, however, the removal of a few crops impoverishes the soil—exhausts the store of available plant-food.—Soils when reduced in fertility from continual removal of soluble matters by cropping, may be restored to productiveness by lying in fallow; mechanical and atmospheric agencies thus bring into solution enough of ash-ingredients for a new crop. A soil consisting entirely of coarse sand is infertile, because it is too dry, and because there can occur in it no sufficient accumulations of available plant-food. A soil consisting of fine sand may be highly productive, especially if it originates from easily decomposable rocks, because the amount of surface that the grains expose, and the close texture of the soil, maintain it in a proper degree of moisture (by capillarity), and allow a sufficient solution and accumulation of food for crops. Clay has a remarkable porosity and retentiveness for water, for ammonia, and for most soluble salts. If dilute solutions of ammonia, potash, soda, magnesia, &c., be agitated for a few moments with clay, or allowed to filter through it, a portion of these bodies is removed from solution, and absorbed by the clay. Putrid urine loses both odor and color by such treatment. The use of salts of alumina as mordants, and for the preparation of lakes, are other examples of the same effect. Soils too rich in clay are heavy, and in wet climates intractable from their physical properties; but in dry countries (Egypt), or when mixed with enough sand to render them physically adapted to the growth of plants, they usually possess a great and durable fertility, since they naturally abound in the aliment of vegetation, and are not liable to suffer loss of their soluble matters from the washing effects of rains or floods.—Organic matter (humus) when formed in wet places, constitutes muck and peat, which are not fertile; but as it occurs in arable soils, in quantities usually not exceeding 8 to 10 per cent., it is of great value, not only on account of its power of absorbing water, &c., but also from the fact that in its decay it is a continuous source of carbonic acid and ammonia, thus satisfying to some extent one condition of rapid growth, already insisted upon, viz.: supplies of atmospheric plant-food by the soil. The carbonic acid formed in the soil by the slow oxidation of humus, acts also according to the amount of its pro-

duction, in the chemical disintegration of the insoluble parts of the soil, and thus indirectly furnishes to the plant increased quantities of ash-ingredients. Until Liebig turned his attention to the applications of chemistry to agriculture, it was thought by the most eminent philosophers, that humus in some of its forms, was the chief nutriment of plants. Liebig denied its immediate value as plant-food, recognized, however, its use as an indirect supply of carbonic acid and ammonia. The best soils always contain soluble organic matter, and, although it has not been proved that cultivated plants are directly fed upon it, yet there is evidence that some of the lower orders of vegetation do assimilate it, and there is no reason to suppose that it may not be appropriated by agricultural plants, since it is sufficiently soluble to find its way into their circulation.—*Analysis of soils for economical purposes.* When chemistry first indicated the relation between the composition of the soil and that of the plant, and showed that certain instances of barrenness and fertility in the former, could be explained by the results of chemical analysis; the idea that the farmer might profitably employ analysis in successfully improving his soil, took deep and wide root. A few considerations will suffice to show, however, that as a general rule, even the most accurate analysis can be of no practical benefit. Saying nothing of the facts that the productiveness of a soil often depends on its physical or chemical condition irrespective of composition; that it is very difficult, nay, in most cases impracticable to get a specimen of soil that shall fairly represent a large field or farm; and that the expense of a thorough and faithful analysis is not inconsiderable—it is quite impossible in the present state of science to distinguish from each other, two soils, one of which is just fertile and the other just barren; for the processes that have been usually employed in soil-analysis are not nice enough to estimate quantitatively differences of 1-10th per cent., with invariable accuracy. Now, since an acre of soil, taken to the depth of only 7 or 8 inches, weighs at least 2,000,000 lbs., and since the total amount of matter withdrawn from the soil by the heaviest crops, rarely exceeds 500 lbs.—1-4000th of the whole, it is folly to expect that analysis can indicate any difference in the composition of a soil, before and after 1, 2, or even 8 crops have been removed from it. Again, there are numerous instances on record, of soils naturally sterile, which, after application of 400 lbs. of guano, manifested a wonderful productiveness. Now, the fertilizing effect of guano is due to several substances which it contains, and the largest of its active ingredients never amounts to 20 per cent., so that to trace its action, or distinguish between two soils, one barren and the other made fertile by guano, the chemist must be able to estimate 100 parts in 2,000,000, or a fraction so small as $\frac{1}{20,000}$.—The only method of chemical examination that promises to be useful is the following: A large

quantity of soil, say 10, or even 100 lbs. is digested and exhausted with water, saturated at ordinary temperatures with carbonic acid. In this way we dissolve all the "presently available plant-food" it contains. The careful analysis of this dissolved portion might be expected to give insight into the value of the soil so far as dependent on chemical composition. Dr. Peter, chemist to the Kentucky geological survey, has recorded in his report some results obtained in this way, except, that instead of exhausting 10 lbs. of soil, he used but 1,000 grains. The amount of dissolved matters in his trials, in no case exceeded 7 grains, while it usually fell below 2 grains, quantities too small for accurate analysis.—For practical purposes, there are, however, other, and in general, simpler means of ascertaining the ability of a soil to supply food for remunerative crops. Thus the character and amount of vegetation which it naturally produces, generally suffice to indicate with certainty the value of a new soil in this respect. It must not be forgotten that in nearly all cases of unproductive soils, the difficulty is less of a chemical than of a physical nature. The great deserts of the world are not sterile because they cannot yield the soil-food required by vegetation; but because they are destitute of water. Wherever a spring arises in them, there is formed a spot of verdure, notwithstanding the incessant sunshine and parching winds. There are some soils, however, which have every external sign of fertility, and nevertheless refuse to yield good crops, which are in fact barren, because deficient in some one or several of the indispensable constituents of the ash of plants. To ascertain and remedy these deficiencies, it is best to proceed in a synthetical, rather than in the analytical manner, viz.: to make trials on separate plots of ground, of the effect of adding to the soil those ingredients which are most likely to be wanting.—The improvement of the soil is a matter involving numerous changes, both in its physical and chemical characters. In the successful practice of agriculture, the correction of the physical qualities of the soil usually effects a marked improvement in its chemical condition. It is at any rate indispensable to the full success of chemical improvements (manures), that the soil be first brought to those degrees of division, porosity, dryness, and depth, that are most favorable to vegetable growth. This is not the place to enter into a full discussion of the theory of draining, ploughing, and the other general operations of tillage. Beside rendering the soil so dry, warm, deep, and penetrable, that the plant finds there a genial rooting-place, these operations have more or less the effect to facilitate the solution and elaboration of the food of the plant, since the soil is thereby divided, and more thoroughly subjected to the action of water and air.—*Theory of manuring.* When the soil is deficient in one or all of those ingredients which favor the growth of the plant, and is consequently unable to produce a remunerative crop, the de-

ficiencies may be supplied and the soil rendered productive by the use of manures. Manures are in general refuse, or very cheap matters, which contain some or all the elements of vegetable nutrition, and may therefore be profitably employed by the farmer, for conversion into useful and valuable agricultural products. The principles on which manuring depends are the following: 1. Plants require various kinds of solid mineral matters, and derive the same exclusively from the soil. 2. Some plants which in the natural state derive the gaseous elements of their organic structure, viz. carbon, hydrogen, nitrogen, and oxygen from the atmosphere, must be supplied with more or less of these matters from the soil, in agricultural production. 3. Different plants require different proportions of these substances in order to luxuriant growth. 4. Different plants require different quantities of these substances to mature a full crop. 5. Different plants from peculiarities of structure, draw differently on the same stores of nutriment. 6. Different soils abound or are deficient, to a greater or less degree, in one or many needful ingredients of the plant. 7. The same soil has a different composition in different years, caused by the removal of matters in the crops, or by the increase of available food from weathering (tillage). The substances usually classed together as manures, may have 8 distinct functions: 1st. They may chiefly serve to improve the physical characters of the soil. Such are some manures that are applied in large quantity, as lime, marl, organic matters. 2d. They may act partly as solvents, or absorbents, and thus indirectly supply the plant with food; e.g. lime, gypsum, salts of ammonia. 3d. Finally, they may enter the plant as direct nutrition. If manures acted merely as direct nutrition, the theory of their operation would be very simple. It would then be possible to judge of the manuring value of any substance by comparing its composition with that of the ashes of cultivated plants; but since many fertilizers produce all the above-mentioned effects, the question becomes a more complicated one. Notwithstanding the vast mass of facts which practice has accumulated concerning the action of a great variety of fertilizing substances, and although during late years scientific men have devoted much labor to the exacter study of their effects, we are yet in the infancy of our knowledge respecting them. In agricultural periodicals are reports of thousands of experiments on the value of manures; we find, however, the most conflicting statements, and a chaos of results. There are authentic instances of nearly every proposed fertilizer increasing crops, and as many instances of failure. Farmers, however, continue to experiment as if there were a possibility of proving, that for each kind of crop, or each variety of soil, there is a specific and unfailing fertilizer. The principles above stated, taken together with the fact that the physical adaptedness of soils to crops is indefinitely varied and constantly changing, de-

monstrate that there can be no fertilizing pancea. They likewise make evident that what is this year a good application for a certain crop and soil, may fail to manifest any action next year; and that what is now inefficacious, may prove highly useful at some future time. The most generally useful manures are those which contain the largest number of ingredients, and which present them to vegetation in the greatest variety of forms. Stable manure occupies the first rank among fertilizers, because it contains every thing that is needful for the nutrition of plants. It is in fact the *debris* of a previous vegetation, and contains all the ingredients of plants, though in proportions altered from the original ones, and, indeed, advantageously altered. The hay, roots, and grain which mature cattle receive every day as food, are in part digested and assimilated, but since full-grown animals do not increase in weight, unless fattened, they excrete daily as much as they ingest. Those portions of their food which are most easily combustible, are, in consequence of the respiratory process, exhaled as water and carbonic acid gas; while the ash-ingredients, and the larger share of the nitrogen, are accumulated in the excreta. In this way there is a concentration of those constituents of the animal's food, which, after they have served their nutritive function for it, become the proper food of the plant. To mention merely all the numerous substances used as fertilizers, is foreign to the purposes of this article; while any detailed accounts of the effects, modes of action, and the methods of preparing or preserving them, would far exceed our limits. Among the various ingredients of manures, 2 in particular have acquired a special significance in late years, viz., phosphoric acid and ammonia. These bodies are commercially the most valuable of all fertilizing substances, a necessary result of their scarcity; and in general, phosphoric acid is a smaller ingredient of cultivated soils, than any other of the components of the ash of plants. Ammonia, especially in the form of carbonate, not only powerfully stimulates vegetable growth, but it probably exerts a strong solvent effect on the minerals which compose the soil. Hence, guano and other animal manures which contain or yield much ammonia and phosphoric acid, are in such large demand among those who practise "high farming." But the exclusive use of fertilizers, which supply to vegetation only a small portion of its ash-ingredients, must sooner or later be found inadequate to produce profitable returns, must, in fact, reduce the soil to a minimum of fertility. The true system of manuring is to maintain a supply in excess, of all forms of plant-food, and indeed of all materials which experience proves to have a good effect on vegetation, whether this effect be chemical or physical.—When chemical analysis first demonstrated that different classes of plants yield an ash of different composition, the idea of *special manure* had its origin. By special manures, were

meant mixtures containing just the quantity of each ash ingredient removed from the soil, by an average yield of each crop. But investigation has demonstrated that there are in general no practical advantages in these attempts to feed the plant by ration. Latterly Lawes and Gilbert, of Rothamstead, England, believed to have established by a multitude of field experiments, that ammonia is specially suited to the production of wheat, and phosphoric acid to the growth of turnips; but there are other equally authentic trials which as fully prove just the reverse, and while on a certain soil, and under a certain set of circumstances, experience may without difficulty establish a rule, as has been done a thousand times; science is not yet far enough advanced to lay down a universally applicable principle or law, concerning the special nutrition of the various classes of cultivated plants.—*Rotation of crops.* It has long been a settled fact in agriculture, that the greatest return from the soil is generally secured, not by continuously growing one plant, even though it command the highest market price, but by an alternation or rotation of crops. There is no difficulty in cultivating any agricultural plant successively for any number of years on the same ground, provided enough be expended in putting the soil into the right physical and chemical condition. But such a procedure is usually more expensive than alternating the crops. The reasons of this are mostly contained in what has preceded, but a few words of explanation may still be useful. When a light virgin soil comes under the hand of the farmer, it yields good crops for a few years, but then subsides to a low state of productiveness. At first it may have yielded wheat; when no longer able to support that crop, it may still give fair crops of barley; the next year if put to turnips or potatoes, it may seem to recover its fertility somewhat, and produce a good burden of roots; but now it will not yield again a good crop of wheat, though probably clover would flourish on it. The causes of such facts lie partly in the soil, and partly in the plants themselves.—As for the soil, as already stated, its composition and texture are perpetually changing. The quantity of organic matter especially, rapidly diminishes when the soil is under cultivation, and the soluble mineral matters are in most cases removed by cropping, faster than supplied by weathering or disintegration.—As for cultivated plants, practical men have classed them according to their demands on the soil, as follows: Enriching crops, clover, lucern, and esparsette. Non-exhausting crops, peas and beans, also cereals when cut green. Exhausting crops, cereals, beets, turnips, carrots, and potatoes. Very exhausting crops, tobacco, flax, hemp, and hops. Among the causes of the different exhaustive effect of various plants, are the following: 1. Different extent or structure of roots and leaves. The enriching crops expose to the air an enormous surface of foliage, and throw out very large, long, and nu-

merous roots. The cereals have much less leaf and root surface. 2. Different rapidity of growth. Clover and root crops continue in foliage during the whole season; while the cereals ripen in July or August. 3. Periods or crises of growth; seed production. Plants which ripen seed, require a better soil than those which only produce foliage, because the rapidity of assimilation seems to increase when the reproductive function comes into activity. Plants which ripen seed, may require a richer soil, not because they remove more from it, but because they need more in a given time. 4. Some crops are entirely removed from the soil, as flax; while others leave the ground filled with an enormous mass of roots, as clover; or strewn with stalks and foliage, as the potato and beet. 5. The quantity of ash ingredients removed from the soil by different plants, is widely unlike. In the light of the above statements, it is easy to see that when a soil refuses to yield remunerative crops of shallow-rooted and quick-growing wheat, it may still produce a luxuriant growth of deep-rooted, large-leaved, and slow-growing clover. It is evident, too, that when a clover-ley is broken up and sown to wheat, this grain may yield well, because the decaying turf and roots are a ready source of every kind of plant-food. This preparation of the soil for an exhausting crop, by the intervention of one of easy growth, is shown in the practice of green manuring, which is, in fact, a rotation of crops; but is also a fertilizing process, because the first crop is entirely sacrificed for the sake of the succeeding ones. Green manuring consists in ploughing under clover, buckwheat, spurry, or other crops, when in blossom, so that the soil shall be enriched by their decay. As these plants (the last named especially) will grow on poor soils, it is possible by their help to reclaim the lightest sands, and bring them up to a fair degree of productiveness in the course of a few years.—*Composition of crops, and their value as food.* There are definite and unalterable relations between the character and habits of the animal, and the composition and physical qualities of its food. In rearing and sustaining domestic animals, 4 distinct conditions occur, viz.: growth, or general development; fattening, or increase of flesh and fat; yielding milk; and performing labor. Different species of animals possess different degrees of aptitude in turning their food into one or other of these directions. Thus, the hog fattens most readily; the cow yields most milk; and the horse performs the greatest amount of labor. All these animals might be fed alike on a certain diet, and yet manifest their characteristic tendencies in a good degree, for the functions of all animals are the same to a certain point. That food, however, which best develops fat in the hog, is not best adapted to sustain the labor of the horse. Where the animal's functions are required to differ in their essential nature, there the food must also differ; and when we will carry the peculiar

aptitude of an animal to the highest pitch, it cannot be done without particular attention to the quality of the food. In fact, by a careful selection of the food, we can change the character of the animal, and when at the same time other physiological circumstances, climate, &c., are suitably regulated, it is possible, in the course of a few generations, to impress new characters on a race. In this way the various breeds of cattle, swine, &c., have originated. A thorough understanding of the reciprocal relations between food and functional development, is therefore of the highest consequence to the practical agriculturist. It cannot, however, for a moment be pretended that science, in its present state, furnishes very extensive or satisfactory knowledge on these points. But physiological chemistry has developed some truths which warrant the hope that our future progress in this direction will be rapid and profitable.—The study of the changes which go on in the animal body, has shown that there are two chief and chemically distinct processes concerned in the maintenance of life, viz., nutrition and respiration. We use the word nutrition in a somewhat qualified sense, understanding by it the support of the working parts of the animal—the muscular, nervous, and cartilaginous tissues. These tissues are characterized by containing nitrogen as an invariable ingredient, and for their development, nitrogenous food, or food containing albumen, casein, and fibrin, is indispensable. No work can be done on a food consisting exclusively of starch, or sugar, or oil; because these bodies cannot supply the nitrogen which is required for the organization of the working tissues. In the normal growth of active animals, the non-nitrogenous principles of the food are consumed in the respiratory process. These bodies are brought into contact with the oxygen inhaled by the lungs, and are burned into carbonic acid and water, which pass off in the expired breath. The heat of the animal is sustained by this combustion. In sluggish animals which ingest large quantities of non-nitrogenous food, the excess accumulates in their bodies in the form of fat. Great activity, and full respiration, are incompatible with this accumulation. The application of these facts is obvious. To keep a horse, or an ox, in working condition, we give a food rich in nitrogen, as oats; to fatten an animal, we use a food richer in starch, sugar, and oil.—Experiments have been recently made, with a view to determine what should be the relation between the nitrogenous and non-nitrogenous elements of the food, for the working, fattening, and milk-giving animal; as well as for otherwise determining the statics of nutrition. Many interesting and valuable results have been obtained already, but the trials have not yet been carried out so far as to lead to entirely satisfactory conclusions. In Saxony much attention has been devoted to these subjects, and experiments in feeding, conducted in that country, have shown that breeding and dairy cattle thrive best, when each animal re-

ceives daily for every 100 lbs. of its live weight, 2.5 to 2.8 lbs. of food (calculated in the dry state), which contains 0.25 to 0.30 lbs. of nitrogenous or nutritive, and 1.25 to 1.40 lbs. of non-nitrogenous or respiratory, fat-forming, material. The stomachs of cattle are adapted for a food containing a large quantity of woody fibre, which is mostly indigestible, and seems to perform a merely mechanical function, in exciting the digestive apparatus. In the trials just alluded to, the best proportion of woody fibre was found to be 2-10ths of the whole dry matter.—Years ago attempts were made to construct from chemical analyses, tables of nutritive equivalents, for exhibiting the comparative value of different sorts of food. The first essays of this kind were very crude and unsatisfactory. Latterly results have been obtained which more nearly accord with practical experience, being founded on more complete analyses, and with a better knowledge of the wants of the animal; but there are many circumstances whose effect on the nourishing capacity of the different kinds of food, has not yet been thoroughly studied, so that this subject is still open to investigation.—As regards the control which can be exercised over the composition and nutritive value of crops, it has been proved that the use of nitrogenous manures increases the relative as well as absolute quantity of blood-forming substances in the grain. The digestibility and consequent nutritive effect of the grasses is greatest when they are cut just after attaining full flower, or, at any rate, before the seeds have hardened, as at this period they contain the maximum of soluble matters.—Afterward the quantity of woody fibre increases. The cereals yield more and better flour when cut while the berry is still in the milk, and for a similar reason.—The success which has attended the use of cooked food for cattle, is in great measure due to the teachings of chemistry; for the careful study of the changes of which the members of the starch group are susceptible, has shown that the cooking of food by boiling or steaming, is equivalent to the preliminary processes of digestion; as in both cases, cellulose, starch, dextrine, and the gums are progressively converted into grape sugar.—We have thus glanced at the outlines of agricultural chemistry, and endeavored to set forth its leading principles in their natural succession. Want of space has prevented the full discussion of any topic, and precluded the introduction of many important ones.—A short sketch of the historical development of this branch of science may be added. Towards the end of the last century the vague and ancient notions that air, water, oil, and salt formed the nutrition of plants, began to be modified with some truer and more definite ideas. Several distinguished philosophers of that time, gave attention to agriculture. In 1761, Wallerius, a Swede, in his treatise, *Fundamenta Agric. Chemicæ*, recognized, to some extent, the connection between the composition of the ash of plants and that

of the soil. Bergmann, the great Swedish chemist, Palissy and Reaumur, also sought to study the chemical conditions of vegetable growth. In 1802, Sir Humphrey Davy was invited to lecture before the English Board of Agriculture, and thereafter made numerous important observations. He recognized the fertilizing effects of ammonia, and analyzed numerous manures, including guano. About the same time Sennebier and Saussure laid the foundations of vegetable physiology, demonstrated the assimilation of carbonic acid and water from the air, and indicated atmospheric ammonia as the probable source of nitrogen to the plant. Saussure also fully recognized the nature, importance, and source of the ingredients of the ash, and studied the life of the plant in all its phases. In 1832, Sprengel made numerous analyses of the ash of plants and of soils, employing more perfect methods than had been previously known. Up to 1840, however, the new truths developed before that time, still existed more or less as grafts on the old speculative doctrines, and it was reserved for the splendid genius of Liebig, to root out the sapless stock, and unite the fragments of truth into an organic whole. The force of his rhetoric, not less than of his logic, excited intense interest in the chemistry of agriculture, and being the most popular teacher that this science has ever employed, he has contributed vastly to the enlistment of laborers in this important field. While Liebig discussed only "the applications of chemistry to agriculture and physiology," his celebrated work under that title having been written at the request of the British association for the advancement of science; Boussingault, a Frenchman of genius and wealth, occupied himself with the special study of the practical operations of agriculture, and in 1842 issued his *Economie Rurale*, a mine of valuable observations and experimental results. From that time on, the number of those devoted to the study of agriculture has rapidly increased, until now there is a goodly company of patient and hopeful laborers; some engaged in laying yet more widely and securely the foundations, others in rearing the noble superstructure of agricultural science.

AGRICULTURAL SCHOOLS. The earliest effort to establish an agricultural school was made in 1775, by the abbé Rosier, who proposed to the French minister, Turgot, to place at his disposal the park of Chambord. His application was entitled, "a plan for a national school of agriculture in the park of Chambord," and had for its object the education of teachers as well as practical agriculturists. The minister looked upon the scheme as practicable, and would doubtless have carried it out but for his expulsion from office. Although successively presented to the national assembly in 1789, and subsequently to Bonaparte, the plan was neglected and opposed, till the intelligent projector was killed at the siege of Lyons. It is to the illustrious example and enthusiastic labors of

Emanuel von Fellenberg, who in 1799 established upon his estate of Hofwyl, near Berne, in Switzerland, the celebrated institution of the same name, that the civilized world owes the present advanced state of agricultural information. The benevolent enterprise of Fellenberg was due to the impulse given to his mind in early youth by his mother, a lady of enlarged sympathy, active religious principle, and intellectual ability. In the same year, 1799, which marked the establishment of the Hofwyl school, the prince Schwartzberg founded a similar one at Krumau, in Bohemia, on a domain containing nearly 800,000 acres, which, unlike the former, which was discontinued about the year 1847, three years subsequent to the death of its founder, is still in successful operation. The means of instruction at Krumau are very ample, and are receiving constant additions. The collections already made comprise models of agricultural implements; philosophical and chemical apparatus; insects; fruits; the cultivated plants of the country; minerals; and a herbarium. Beside these, there are a botanic garden, conservatory, and an astronomical observatory. The instruction is gratuitous, and the object of the institution is to render the sciences taught as practical as possible.—The agricultural schools of Europe are divided into various classes, each of which is designated by a name illustrative of its proposed object, viz., superior, intermediary, inferior, and special. These distinctions have grown out of the particular wants of different localities, and the exclusive influences of nobility and wealth. In some cases they are entirely maintained by the government, in others wholly by private effort, and in some by the two united. With scarce an exception, whether independently existing institutions, or dependent in part upon colleges for their teachers, or mere professorships in colleges, each is connected with a farm, of greater or less size. Whilst Europe was plunged in distracting wars, and the countries were devastated by marauding armies, the public attention naturally could not be drawn to such peaceful projects; but the success of Fellenberg at Hofwyl, and of Prince Schwartzberg in Bohemia, coming at a time of comparative quiet, excited a lively interest, which has resulted in the establishment of hundreds of schools in all parts of Europe, and has just begun to be felt in the United States. Because of the nearness of these schools, and their isolated situation, but little information concerning them has been brought before the public of this country, other than that contained in "Colman's European Agriculture," and the excellent report of Prof. Hitchcock in 1851. At the time of the publication of Mr. Colman's book (1844), there were but 9 agricultural schools in existence, which he thought worthy of notice; but so rapid has been their multiplication, that Prof. Hitchcock only 7 years afterward enumerates no less than 852, and many more were then about to be established. The example

of Krumau was followed by the founding of an industrial school at Prague, in 1808, at which instruction was given in agriculture, chemistry, mathematics, architecture, mechanics, hydraulics, drawing, and technology.—The next was that at Möglin, in Prussia, in 1806. The farm consisted of 2,480 acres. In 44 years it sent out 511 pupils, after a 4 years' course of instruction. But 20 are admitted at a time; these board with the director, and pay \$240 per annum. Beside these, a few temporary pupils are taken at \$7 per week. Beside the branches above enumerated, special attention is given at Möglin to the irrigation of meadows, breeding fine-woolled animals, and the cultivation of potatoes.—The superior school at Grätz in the province of Styria, in Austria, was established in 1809. There are here 9 professors, who give 11 courses in botany, zoology, mineralogy, geology, mathematics, chemistry, physics, mechanics, agriculture, sylviculture, and the working of mines. There are collections in natural history, a good library, a silk-worm house, and a large botanic garden attached to the school. The instruction is gratuitous.—In the year 1818, M. de Dombasle rented 875 acres of land at Roville, in France, and established a model farm and agricultural school. By means of a subscription of 45,000 francs, he was enabled to put it into operation in 1822, and it continued to exist until the year 1848, when, with ruined health, he was forced to relinquish his efforts.—In the same year (1818), with the purchase of the estate of Roville there was established at Hohenheim, in Württemberg, by King William, the royal institution of agronomy and forests, which, as is the case with all the other agricultural schools in that country, is distinguished for excellence of management and practical results. They are all sustained and directed by the government. The lands and other property are, however, entirely resigned to the management of the school, which furnishes annual reports of accounts-current. There are 40 courses during the term of instruction, comprising a system of lectures upon the various sciences relating to agriculture, and an intelligent method of farm management. The instruction is grouped into, 1, agricultural matters; 2, forest matters; 3, auxiliary sciences. The number of students has for some years amounted to 140. In 81 years, the large number of 1,650 were graduated from the institution. The students board wherever they choose, but sleep at the institute. Prof. Hitchcock says that nowhere in Europe can there be found a better model of an agricultural and scientific school than at Hohenheim. There is a large farm of 825 acres; a forest of 5,000 acres; a botanic garden; a library; geological, mineralogical, and botanical collections; collections of woods, seeds, and resins from the forests; collections of comparative anatomy; of wool; and of agricultural products; models of instruments of tillage; instruments for surveying, and physical sciences; and a well-appointed chemical laboratory. Beside this royal institute

there are in the neighborhood practical schools of agriculture, horticulture, meadows, and irrigation, culture of flax, and the manufacture of agricultural implements.—The next European school of agriculture of which we have any record, is that at Schleissheim, near Munich, in Bavaria. This ranks in the superior class, or rather the main school should be subdivided into two; one preparatory, or inferior, at which students prepare for admission into the other, and the superior, at which the studies embrace a wider range of investigation, similar to that at Hohenheim. The Schleissheim school was founded in 1822, upon a public estate of near 7,000 acres, on which an average of 425 head of cattle are annually reared. Beside this, there were in 1850 some 80 other schools of inferior rank in various towns of Bavaria. There is also a professor of agriculture in the university of Munich, who is director of the agricultural board, which superintends, by means of branch societies, the whole agriculture of Bavaria.—In the year 1827 was established the agronomic institute at Grignon, in France, upon a tract of some 1,200 acres of land. This school has acquired a wide fame, and in 1844 was looked upon by Mr. Colman as a model institution. The land was ceded by Charles X. for a term of 40 years, to an association of gentlemen specially interested in agriculture, and who raised by subscription the sum of 800,000 francs. "The rents paid for the land are the same as were paid by the farmers who previously held it. The substantial or permanent improvements upon the estate are estimated by a commissioner once in 5 years, and are to go at the end of the lease in acquittal of the rent. The money subscribed by individuals was given to the institution. On this capital employed on the farm, an interest of 16 per cent. has been realized, which goes to the benefit of the institution. The school was reorganized in obedience to the general law of the national assembly of October 1848, but without altering its plan of instruction and general arrangements. The purpose of the school is not to make farm laborers to do the drudgery of the farm, so much as to send forth a very important class of stewards or bailiffs. To accomplish this they are, of course, made practically conversant with every detail of farm operations, as well as thoroughly instructed in the theory of husbandry. They plough, harrow, dig, cultivate, plant, sow, hoe, thresh, take care of teams and stock generally, lay out and superintend work, erect farm buildings, keep accounts, and in a word perform every duty of a practical farmer, to make ready for any possible emergency of farm experience. They pay \$188 per annum for board, and receive no compensation for their labor. The course of instruction extends over three years, and embraces the varied details suggested by the following heads: mathematical sciences; physical and natural sciences; technological sciences; zoological sciences. There are two rigid public examinations, and if passed successfully through these

the students receive suitable diplomas. The law of 1848 divided France into agricultural districts (*regions culturales*), in each of which, and as near the centre as possible, was to be established a school of agriculture, or *regional* school. Beside these, farm schools of an entirely practical nature were established, in which apprentices are chosen from the laborers who, instead of pecuniary recompense other than their board, received a thorough agricultural education at the expense of the state. The remaining degree of instruction was that of the national agronomic institute at Versailles, the course of study at which differed from that of the regional schools only in being more elevated and ample. The school at Grignon was embraced in the class of regional schools. Until its reorganization under the law of 1848, it received from the government an annual gratuity of about \$1,000, but at that time the society of gentlemen who managed its affairs relinquished it, and the responsibility being assumed by the government, the appropriation was discontinued."—The "North-west-of-Ireland Society," established in 1827, at Templemoyle, near Londonderry, Ireland, is an agricultural school which has earned some repute for itself. It was first patterned after that of Hofwyl, in separating the poor and rich; but this has been very wisely changed, and the school continues in a prosperous condition. The students are principally sons of farmers in moderate circumstances, and usually fill places as stewards upon large estates, masters in other schools, or farmers for themselves. The instruction is given both orally and by lectures, and embraces, in addition to practical and theoretical agriculture, the common English branches. The farm is under two different rotations of crops, the "five-shift" and "four-shift" systems, and although naturally poor, is forced to yield good crops. There are 169 acres attached to the school, from the produce of which the debt of \$2,000 was, at the time of Mr. Hitchcock's visit, being gradually extinguished, and the school increasing in influence. The annual charge to the student was \$44.—The next in chronological order was that at Tharand, Saxony; which, under the excellent management of Dr. Stöckhardt, has attained of late years enviable reputation. This is a school of the superior class, and was established in 1811, simply as a school for forests, but its elevation to the rank of a general agricultural institution dates from the year 1829. The estate contains nearly 8,000 acres, of which a considerable portion is covered with forests, to the care of which the lectures of two professors are specially directed. The number of students from 1841 to 1851 averaged about 80 annually, and the whole number from the foundation to the latter date was 1,100. In the early part of 1856, there were 112 students, 99 of whom attended the lectures on agricultural chemistry, while 61 worked at analysis and laboratory practice. Each year the entire school makes scientific excursions, to observe natural laws and collect

specimens. The course lasts two years. The charge for tuition is \$35 for Saxon boys, and \$52 for foreigners.—The royal academy of Agriculture at Eldena, Prussia, in the district of Pomerania, was established about the year 1880, upon an estate belonging to the university of Greifswalde. Seven-eighths of its pupils have applied themselves to agricultural pursuits, the others having been absorbed to fill government places. The charge for tuition is \$90 per annum, exclusive of board. No pupils under the age of 17 are taken, and all must have had a classical education.—In 1838, 8 agricultural schools were put into operation, viz: the agronomic institute of St. Petersburg, Russia; that of Grand Jouan, in France; and one of the intermediary class at Lichtenhof, Bavaria. The first of these was founded in 1833, and its existence, as well as that of all the Russian schools and colleges of agriculture, is directly the result of the example of Hofwyl. A tract of 880 acres, with the sum of \$525,000, was appropriated for its establishment, and subsequently for its annual support the government has allowed \$75,000. The number of pupils is 250, and the course of instruction is intended to be as practical as possible. The mechanic arts are very thoroughly attended to, and daily practice is given in various pursuits, agricultural and others. The school at Grand Jouan in Brittany, France, owes its existence to the successful culture of 1,250 acres of barren land by one of the pupils of M. de Dombasle's school at Roville, who, by an application of the scientific principles learned at that place, gained the admiration of the whole district. The Grand Jouan school pursues the same course of instruction as that of Grignon, and maintains an equal rank. There are attached to it schools for peasants and for orphans. Like the Grignon school, it was reorganized under the law of 1848. The school at Lichtenhof near Nuremberg in Bavaria, was founded in 1838 by Dr. Wedenkeller, with the assistance of opulent friends. The government were so impressed with the evident good management and success of Dr. Wedenkeller's efforts, that it created scholarships. During the 3 years' course, there are, in fact, 4 schools, a preparatory agricultural and industrial department; a school of horticulture; a school for head servants; and one for herdsmen and shepherds. The range of studies also embraces religion, the German language, drawing, fencing, riding, etc. It is ranked in the class of intermediary schools.—At Geisberg in the duchy of Nassau in 1835, the government established the agronomic institute, the only school of agriculture in that state. It ranks in the superior class; but from an impression on the part of the executive, that in the same school the theory and practical application of agriculture could not be profitably taught, the pupils spend only the winter at the institution, and the summer with some good farmer or at their respective homes. The lectures are well illustrated by models of agri-

cultural implements, collections of wax models of fruits, minerals, plants, and animals. The course extends through two years. The number of pupils is annually about 50. The charge for instruction is merely nominal for foreigners and gratuitous for natives. The government pay about \$18 for each pupil, and there are 6 scholarships of \$10 each for the most attentive and laborious. The site of the school is described as being very attractive.—The model school and farm at Glasneven, Ireland, was established in the year 1838 on a tolerably fertile tract of 128 acres, more especially for the purpose of training up teachers for other schools. Both Mr. Colman and Prof. Hitchcock bear testimony to the prolific crops obtained at this institution, and in fact, the latter gentleman thinks he never saw any so fine elsewhere. The oats yielded 80 bushels per acre, and potatoes 700. The instruction is literary as well as agricultural. The pupils, except in a very few cases, were not younger than 20 years of age. The director of the school pays a rent as high as \$35 per acre, and yet even at this high rate, Mr. Colman states that he believes he reaps a profit. During the year 1857, however, a statement was made in some of the agricultural journals to the effect that the Glasneven husbandry had not proved remunerative. It is said that the expenditures amounted to something like £5,150, and the receipts but to £1,445.—Prof. Hitchcock mentions as in existence in 1850, at the time of his explorations, an agricultural school of the superior class at Pisa in Italy, which was commenced in 1842, but whose labors had not been so energetic as to earn for itself a European reputation. It was placed at the gates of the city of Pisa for the purpose of acting in coöperation with the university, and its professors with a single exception were furnished by the latter. The course of study was for 8 years, embracing mathematical, scientific, and literary teachings, as also the laws directly influencing plant and animal life. There were annual examinations of the students, and diplomas were awarded. Partial courses of 3 months were also permitted.—We next hear of the agricultural institute at Beberbeck in the electorate of Hesse. The scientific collections connected with it are quite full, and well calculated to assist the professors in their lectures, which embrace a wide range of study, but do not differ materially from those already mentioned, as pursued at other schools of the superior class. The institution was founded in 1846 upon a domain which contains 620 acres, beside considerable pasture land. The course extends over 3 years.—The year 1847 marks the commencement of a school of the inferior class at Frauenbreitungen in the duchy of Saxe-Meiningen, but it is not entitled to special notice. In 1848, Count Adam Potocky established a superior school at Cracow, in Austrian Poland. A capital of \$14,000 and an annual income of \$1,600 were given to it. The only school of agriculture in the grand duchy

of Baden up to 1850, was that at Hochburg, established in 1848 on the national domain. Its rank is in the intermediary class. The instruction is mingled, practical and theoretical, being comprised in 12 lessons per week in winter and 17 in summer. On the farm, the first year is employed in manual labor, the second in the care of animals, and the third in managing horses in harness and general work. The instruction is gratuitous and the pupils are remunerated for their labor, sufficiently, with a gratuity from the state of \$16 each, to pay the expense of board.—In Belgium in 1850, there were established 3 intermediary, 2 inferior, and 1 special school, beside 8 others, which are adjuncts to the communal colleges; in all, 9. In the intermediary schools, the course of study embraces geometry, surveying, levelling, drawing, mechanics, physics, mineralogy, geology, botany, chemistry, agricultural technology, horticulture, the economy of forests, agricultural zoology, the veterinary art, hygiene, rural law, rural architecture, and agriculture. The elements of these studies are in part pursued in the inferior schools. A committee appointed by the government visit the schools once in 8 months. The officers consist of 1 director, 2, 3, or 5 professors, an instructor in gardening, a head farmer, and as many laborers as are needed.—The royal agricultural college at Cirencester, about 95 miles from London, was, we believe, established about the year 1849. This institution is sustained without government aid. The main buildings are of a substantial and imposing character. The farm contains some 700 acres of rather poor soil, but by well-managed culture good crops are obtained. Attention is given to agricultural chemistry, as also to veterinary practice. The unfavorable distinctions of rank are such in England that the directors of the college were obliged to relinquish their original custom of admitting the sons of the smaller farmers, because of the refusal of the wealthy and privileged classes to patronize the institution, unless made more exclusive. The price of tuition has in consequence been raised, and the pecuniary condition of the college has improved. The charge for board and tuition is \$355 per annum; for tuition alone \$175. There are accommodations for some 200 pupils. There is a corps of 6 professors, whose specialties are the science and practice of agriculture, chemistry, geology, natural history, and botany; mathematics and natural philosophy; veterinary practice and practical surveying and engineering. The pupils spend half the day on the farm, and employ the residue of their time in listening to the different lectures, and in chemical manipulation. In 1854 there were 80 students, and the college was in a prosperous condition. It is now under the management of the Rev. J. S. Haygarth.—Beside the leading schools and colleges which we have thus chronologically mentioned, there are numbers of inferior grade and less extended influence, and

some few of even equal rank, but the dates of whose establishment are not on record. Amongst these may be mentioned, in England, the training school at Hoddesdon, Herts, and the agricultural school at Kimbolton, under the care of the Rev. John Thornton. In Ireland, there are the Queen's colleges, at which are professorships of agriculture; the Larne agricultural school; the model schools at Markethill, in Armagh county; Hollyrood, in Doon; Carriek, in Fermanagh; Longhash, in Tyrone, and similar ones in the counties of Clare, Kings, Galway, Tipperary, Cavan, Cork, Donegal, Monahan, Limerick, Kilkenny, and Leitrim; and one at Brookfield, near Belfast, sustained some years since by the society of Friends.—In Scotland, there is a chair of agriculture filled by Professor David Low, in the university of Edinburgh, and 1 in Marischal college in Aberdeen. In Prussia there is the royal academy of agriculture at Poppelsdorf, similar in plan to those of Eldena and Möglin, already mentioned, and 1 at Poskau. In Austria there is a professorship of agriculture attached to the university of Lemberg; and an inferior school at Trutsch which was founded by the Countess Dietrichstein. In Saxony there is an intermediary school at Dresden, 1 at Brüsa, and 1 at Schönfeld, near Dresden. In Brunswick there is a superior school with 18 professors, who give as many courses. In Schleswig Holstein, there is an agronomic institute at Töstrup, and inferior schools at Rodding and Jevenstäd. In the principality of Anhalt, there is 1 superior school at Coswig, and 1 intermediary, at Ocksted. In the grand duchy of Hesse, there are 2 intermediary schools, 1 at Darmstadt, the other at Arnberg. In the grand duchy of Weimar there is 1 superior school at Jena, connected with the university; and in Russia, an imperial institute at Gorgi-goretz, an agronomic institute at Moscow, and 2 intermediary schools at Marjino, established by the Countess Straganow, at which, in 1844, there were 125 pupils. The Massachusetts report gives the following table of European schools and colleges:—

SCHOOLS.	Superior Schools.	Intermediary Schools.	Inferior Schools.	Special Schools.	Connected with Colleges and Universities.	Total.
In England,	1	..	4	..	..	5
In Ireland,	1	25	24	..	9	59
In Scotland, . . . . .	..	..	..	..	9	9
In France,	5	..	70	..	..	75
In Italy, . . . . .	..	..	1	..	1	2
In Belgium, . . . . .	..	3	2	1	3	9
In Prussia,	3	2	19	18	2	33
In Austria,	4	..	3	25	1	33
In Württemberg,	1	2	1	3	..	7
In Bavaria,	1	1	32	1	..	35
In Saxony,	1	3	..	1	..	5
In Brunswick, . . . . .	..	1	1	..	..	2
In Mecklenburg-Schwerin, . . . . .	..	1	..	..	..	1
In Schleswig Holstein, . . . . .	..	2	2	..	..	4

SCHOOLS.	Superior Schools.	Intermediate Schools.	Inferior Schools.	Special Schools.	Connected with Colleges and Universities.	Total.
In the Principality of Anhalt,	1	1	..	..	..	2
In the Grand Duchy of Hesse,	..	2	..	..	..	2
In the Grand Duchy of Weimar	..	..	..	..	1	1
In the Duchy of Nassau,	1	..	..	..	..	1
In the Electorate of Hesse,	1	..	..	..	..	1
In the Grand Duchy of Baden,	..	1	..	..	..	1
In the Duchy of Saxe-Meiningen	..	..	1	..	..	1
In Russia,	2	10	51	4	1	68
Total,	22	54	214	48	14	352

The first institution of the kind to be noticed in the United States is that being erected at Ovid, Seneca county, by the government of New York, aided by private effort. As early as the year 1837, the public mind was aroused to the importance of giving more attention to the subject of agricultural education, and a committee was constituted consisting of Judge Buel, Joab Centre, Dr. Beekman, and Anthony Van Bergen, whose duty it was to collect subscriptions, select a site, and propose a plan of operations. The committee met with such success in obtaining subscriptions, that they actually selected a place at the mouth of Kinderhook creek, on the banks of the Hudson. But after all, the matter was suffered to drop. Still the gentlemen of the committee did not abandon the agitation, and in 1844 Dr. Beekman, being then president of the N. Y. state agricultural society, chose for the topic of his official address, the importance of agricultural education. Hereupon John Delafield, esq., drew up a plan of organization which was adopted, and a charter was obtained from the state legislature. Mr. Delafield proposed to render the education not only thorough in theory but in practice, and to place it at a rate within the ability of the farmer in quite moderate circumstances. The course was intended to include the fundamental laws which underlie the science and art of husbandry, as well as the adjunct sciences. The pupils were to be regularly employed in the field for a portion of the time, and be remunerated for their labor. This benevolent design was, however, frustrated by Mr. Delafield's death in 1853. B. P. Johnson, esq., and the members of the executive department of the society, next urged the plan upon the notice of the public, and made application to the legislature for aid. In 1856 a sum of \$40,000 was appropriated by the legislature, with the proviso that a like sum should be raised by private subscription. This was speedily accomplished, and the commissioners accepting an offer from citizens near the town of Ovid, a tract of some 400 acres was purchased. The tract is in full view of Seneca lake, and so far as the advantage of scenery and soil are concerned, the selection is excellent. The buildings are intended for the accommodation of a

large number of pupils, and it is the purpose of the trustees to follow the best European models in respect to internal arrangements and course of instruction. The services of Dr. Asa Fitch, the eminent entomologist, have been secured as professor in his department.—The agricultural college of the state of Michigan has been established in obedience to a provision of the revised constitution of the state, adopted Aug. 15, 1850. To carry out this provision an act was passed at the session of 1855, providing for the purchase of land and the endowment and management of the institution. The course of instruction is to embrace all the branches necessary for a complete agricultural education; and on Feb. 16, 1857, an amended act was passed appropriating \$55,000, or the proceeds of the sale of 22 sections of the salt spring lands, originally given to the state of Michigan by the general government. The sum of \$40,000 for the ensuing 2 years was likewise appropriated to the object of the institution. A tract of some 676 acres was purchased by the trustees at $8\frac{1}{2}$ miles E. from Lansing, the state capital. A building capable of accommodating 80 pupils was erected there, and on May 18, 1857, in the presence of the governor, the state dignitaries, and an immense concourse of citizens, it was formally dedicated. It opened with 61 pupils. The faculty consists of Joseph R. Williams, president and director of the farm; Calvin Tracy, mathematics; L. R. Fisk, chemistry; H. Goodby, physiology and entomology; D. P. Mayhew, natural science; Robert D. Weeks, English literature and farm economy; John C. Holmes, horticulture. The young state of Michigan has thus the honor of putting into actual operation the first state agricultural college in America, which derives its entire support from government.—There is at Cleveland, Ohio, an agricultural college, which, although it has in its faculty names of gentlemen highly distinguished in their profession, and is in a state noted for its magnificent growth and present opulence, finds but limited support. The original projectors of the Ohio agricultural college were Prof. James Dascomb, Prof. James H. Fairchild, and the Hon. Norton S. Townshend. To their number have since been added Prof. Samuel St. John, and Prof. Brainard. The first winter's session consisted of a course of lectures delivered at Oberlin, O.; but it was thought advisable to remove to Cleveland, where spacious and appropriate rooms had been offered them, and since that time the school has been continued there. Four daily lectures are given, commencing on the first Monday of December, and continuing for 12 consecutive weeks. The branches taught embrace whatever pertains to animals, vegetables, land, or labor. The charge for the entire course of instruction is \$40, exclusive of board.—For some 10 years past an annual course of 80 lectures on the chemistry and general principles of agriculture has been given at Yale college. It was established by the late Prof. John P. Norton, and subsequently con-

tinued by Professors J. A. Porter, and Samuel W. Johnson. Professor Norton at one time attempted to give a special course of agricultural laboratory practice, but this not meeting with sufficient support has been discontinued. Prof. S. W. Johnson has passed some time in Europe in the laboratories of Liebig, Müller, and others, and has already done good service in the advancement of the science of agricultural chemistry in this country. There are likewise professorships of agriculture in colleges in Georgia and Virginia. At West Cornwall, Conn., Dr. T. S. Gould has had in operation since 1845, a school for boys in which agricultural instruction is introduced. The institution is entitled the "Cream Hill Agricultural School," and it is said to prove the possibility and profit of mingling agricultural studies with those of the usual education. Each pupil cultivates a portion of land, and small prizes are awarded for the best success attained in their separate plots. They are also encouraged to join in the general operations of the farm, care of stock, &c. The only private school exclusively devoted to agricultural education, is the Westchester farm school, commenced at Mount Vernon, N. Y., in the spring of 1856, by Henry S. Olcott, and Henry O. Vail. These gentlemen purchased a farm with the view to the cultivation of the soil, and the gradual establishment of an agricultural school. Their course of instruction is designed to tend as much as possible to good practical results, and the theories of plant and animal growth and farm management, are illustrated in the daily labor on the farm. The instruction is given through daily recitations and occasional lectures. There is also established at College Hill, near Cincinnati, O., an institution termed the farmer's college, at which a practical course of agricultural study is pursued in connection with the branches of an ordinary English and classical education. This college is a successor to Cary's academy, and the large model farm attached to it is under the charge of Mr. Freeman Cary. The students have constant practice on the farm. The institution is supported by a fund of \$100,000 raised by the sale of scholarships. The Rev. A. Mattoon is the president. The state of Ohio is about to make an effort to introduce a modification of the system pursued at the agricultural colony at Mettray, France, which has for its chief object the reformation of vagrant boys. A tract of 1,170 acres has been purchased near Lancaster, Fairfield county, O., and the commissioners, Messrs. O. Reemelin, John A. Foot, and James D. Ladd, are making the necessary preliminary arrangements. There is also an experimental farm belonging to the state of Massachusetts, at Westborough, which was purchased with a view to being worked by the vagrant boys in the adjoining state reform school, and thus giving them a knowledge of agriculture. The agricultural portion of the project has recently been placed under the control of the state board of agriculture. An estate valued at \$850,000 was be-

queathed to Harvard college in 1842, by Mr. Benjamin Bussey, of Roxbury, Mass. (the legacy to take effect after the decease of certain relatives), one half of which, including his mansion and farm, was to be appropriated to the establishment of an agricultural school under the direction of the college.—The farmers' high school of Pennsylvania, was founded by the agricultural society of that state. By its annual exhibitions up to the fall of 1854, the society had accumulated a fund of \$10,000, which suggested to its intelligent and indefatigable president, Judge Frederick Watts, of Carlisle, the idea of establishing an agricultural school. The legislature passed an act to incorporate the farmers' high school, and a board of trustees consisting of 9 members, with the governor, secretary of the commonwealth, and the president of the state society as ex-officio members, was duly organized. Gen. James Irvin proposed to give the school 200 acres of fine land, worth \$60 per acre, with the privilege of purchasing 200 acres at the same price, within five years; to which the people of Centre county added a subscription of \$10,000. Mr. Elliott Oresson, of Philadelphia, by his will left to the school a legacy of \$5,000, and with these resources the work of preparing the land, planting hedges and orchards, and erecting buildings, was commenced. At the last session of the legislature a law was passed appropriating \$50,000 to the school, half of which sum being dependent upon the raising of a like sum by individual contribution. This being accomplished, the institution will be in possession of \$100,000, in addition to the farm presented by Gen. Irvin. During the year 1856, a neat house and large barn were erected, orchards and nurseries were planted, and the grounds and "campus" laid out—all under the supervision of Mr. Wm. G. Waring.

AGRICULTURAL SYSTEM, a theory of political economy invented by Francis Quesnay, physician to Louis XV. He taught that only those who cultivate the earth, or otherwise bring into use the natural powers of the vegetable, mineral, or animal kingdom, can be regarded as really increasing the wealth of the community. According to this theory, artisans, merchants, scholars, public officials, and professional men, are unproductive persons. At the same time, they are necessary to the occupation of the farmer, herdsman, miner, or hunter, and are therefore useful. All wealth being derived from the earth, its net product alone should be subject to taxation. The adherents of this system also taught the doctrine of absolute and universal free trade. They were also known as *physiocrats*, a word derived from the Greek *phusis*, nature. They exercised a predominating influence in the French national convention.

AGRICULTURE may be defined as the art of cultivating the ground, and of obtaining from it the products necessary for the support of animal life. A complete history of agriculture from the earliest period down to our own times,

would be the history of the labors and progress of man in one of the most important departments of his industry; and thus, through its whole course, would continually give us indications of his progress in the arts of civilization. Our limits will allow only a brief general view of the varying states of the art at different periods, with a few casual allusions to the subjects connected with it. We may conceive of a time when men subsisted on the spontaneous productions of the earth and the easy gains of the chase, on fruits, vegetables, and animals, all of which were obtained with little exertion in sufficient quantities to support a limited population in the temperate and beautiful regions where the human race is supposed to have originated. But all must be left to conjecture and vague surmise previous to the first record in which Cain appears as a "tiller of the ground," and Abel, as a feeder or "keeper of sheep," offering the "firstlings of his flock." Here we find the two grand divisions of agriculture—the tilling of the soil, requiring the active labor of head and hand, and the raising of animals, or the more passive watchfulness of shepherd life—and it is reasonable to suppose that these divisions continued as the human family increased. The change from a state of nature, in which the first of the race must have lived, to the pastoral, or to any higher mode of living, must have been gradual, the work perhaps of ages. Experience and observation, on which improvements in the modes of life usually depend, are gained only by slow degrees. Reliance on the spontaneous fruits of the earth was found to furnish only a precarious subsistence. The race was doomed to toil, and necessity soon sharpened the power of invention. In the course of time, during which the race multiplied and wandered about from place to place, the countries watered by the Euphrates, the Tigris, and the Nile, were found to be most productive, and the dwellers in their fertile valleys naturally became engaged in tilling the soil; and we read that "Noah became a husbandman and planted a vineyard," while the dwellers in the hilly countries of Syria and the lands east of the Mediterranean, which were better adapted to grazing, very naturally became the owners of flocks and cattle. It is well known that the chief riches of the early Jewish patriarchs consisted of cattle and fruits. Thus we read that Abraham was "very rich in cattle," while Lot had "flocks and herds and tents," and their united stock increased to such a number, that the country could not support them, and they were compelled to separate, the one departing to the east and the other to the west. So Jacob gave his brother Esau no less than 580 head of cattle. Still later, we find that Moses was a shepherd; Shamgar, at the time of his appointment as a judge in Israel, was taken from the herd; Gideon was found threshing, and Saul, though a king, when the news of the danger of one of his towns reached him, was driving a herd of cattle from the field. David was fond

of feeding his ewes, and Uziah "loved husbandry," and had "much cattle." Elisha, when sought by Elijah to receive the mantle of a prophet, was found ploughing with twelve yoke of oxen. We know that Chaldea and Egypt, from the remotest recorded times, were noted as the lands of corn. The exceeding fertility of the valley of the Nile, a strip of country from 4 to 5 miles in width, gradually sloping down to the river, and extending from 400 to 500 miles, is well known. It was overflowed during 3 months in the year, from about the 1st of August to about the 1st of November—and the subsiding waters left the richest possible top-dressing of slime and mud. Then the cultivator had only to cast in the seed, turn on a herd of swine to tread it in, and await the abundant harvest. Such a country, bounded on either side by the desert and the mountains, was not suitable for grazing, as was the region lying east of the sea, or the land of Canaan, a region occupied by keepers of cattle, who moved from one district to another with their flocks and herds, like the wandering Arabs of the present day. Such a mode of life was in some respects agricultural, perhaps more so, at least, than the earlier state of hunting and fishing, but still gave no indication of any settled system of agriculture, like that which prevailed at the same time in Egypt and along the Euphrates and the Tigris. The agriculture of a people must, of course, be much influenced by the climate and natural features of the country. Its progress must also be dependent in a great degree on the larger or smaller population of the country. The wants of a scattered and limited population are comparatively few and easily supplied, there is no stimulus to exertion or improvement, and hence, can be no settled system of agriculture. Mankind, in a partially civilized state, will not work for the love of it, nor will there be need of real labor as long as the few fertile spots furnish an abundant and easy supply for all their wants. It is only when population increases that real improvements commence, and civilization really begins to advance, and then progress is gradual and generally slow. In the beginning, the real nature and value of the products of the earth must have been learned by the evidence of the senses. The nutritious qualities of the cereal grains, as wheat, barley, etc., must have been first discovered before there could have been any motive for their cultivation, and probably they were cultivated for ages before the idea occurred of increasing the natural fertility of the soil by manures. The processes employed must have been extremely simple at first, being confined without doubt to simply preparing the ground to receive the seed, without any attempt to stimulate its natural productiveness. So far as we have any certain knowledge on the subject, Egypt, Chaldea, and China, were among the first nations which extended the limits of agricultural practice in ancient times. This is shown by their records, which go back with some degree of certainty to remote antiquity.

In these countries, it is probable that animal power was first applied to agriculture; and among the hieroglyphics on the ancient tombs of Egypt, is found the representation of an implement resembling a pick, which was used as a plough. From Egypt a knowledge of agriculture extended to Greece, and we find it in a tolerably flourishing state 1,000 years before Christ, if we may believe the testimony of the "Works and Days" of Hesiod. Here we have a detailed description of a plough consisting of a beam, a share, and handles, though the whole structure is extremely rude, when compared with our modern ploughs. And we may infer that the early settlers of Sparta possessed no inconsiderable knowledge of draining, since the site of the city was surrounded by swamps and marshes, and must have been well drained before it could be made even habitable. In Greece the art of farming gradually advanced, until, in the days of her glory, it may be said to have attained, in some provinces, a high degree of perfection. We know the Greeks had fine breeds of cattle, horses, sheep, and swine; that many of the implements of husbandry in use among them were not very unlike in principle, those of modern construction; that extensive importations were made from foreign countries of sheep, swine, and poultry, for the purpose of improving the stock of Greece. The use and value of manures were known also; a knowledge which was probably derived from Egypt, or from the ancient Jews, who were well acquainted with their effects, though Pliny says that the use of manures was introduced by an ancient Grecian king, Augeas. So the Greek farmers composted with skill, and saved the materials for the compost with care, and we know that the importance of a thorough tillage was well understood by them; that they ploughed three times with mules and oxen, and sometimes subsoiled, and often mixed different soils as sand and clay; that they raised many of our own favorite fruits, as the apple, pear, cherry, plum, quince, peach, nectarine, and other varieties, together with figs, lemons, and many other fruits suited to the climate; we know, too, that they had a taste for rural architecture, and displayed a knowledge of its principles in their country houses. Moreover, they had the advantage of no small amount of agricultural literature, the names of several agricultural writers having come down to us, though the works of only a few of them have survived to our day, and of these, the treatise of Xenophon is the most valuable. But in comparison with many other countries, Greece was not well fitted for agriculture, and the husbandman often had to struggle against a hard and intractable soil, or to reclaim and till swamps and morasses; these swampy grounds, when improved, however, frequently became the richest of his fields. Agriculture was not a source of pride with the Greeks as it afterwards became with the Romans. One cause of this was the fact that the land was tilled mainly by a subdued and menial

race, the dominant race, the Greeks of history, being the masters, and cultivating other arts in which they took a deeper interest, but looking down with contempt, almost, on the tillers of the soil. The Greeks proper, the Greeks of history, cared more for building up and advancing their cities than for cultivating the soil. On the contrary, a high appreciation of agriculture seems to have been a fundamental idea among the early Romans. A tract of land was allotted to every citizen by the state itself, and each one was carefully restricted to the quantity granted. It was said by the orator Curius, that "He was not to be counted a good citizen, but rather a dangerous man to the state, who could not content himself with 7 acres of land." The Roman acre being about one-sixth less than ours, the law actually limited the possession to about 6 acres. This, however, was only in the early days of Rome, and afterward, as the nation became more powerful, and extended its limits by conquest, the citizen was allowed to hold 50 acres, and still later, he could be the holder of 500. The limitation of the freehold in the earlier history of the nation, in connection with the old Roman love of agriculture, led to a careful and exact mode of culture, probably with the spade, and hence, large and abundant crops were obtained. Pliny, however, ascribed the productiveness of the soil to the fact, that "the earth took delight in being tilled by the hands of men crowned with laurels, and decorated with triumphal honors." It is a very familiar remark, that no greater praise could be bestowed upon an ancient Roman than to give him the name of a good husbandman. Cincinnatus is called from the plough to fight the battles of his country by every agricultural writer of modern times, and Cato the censor, distinguished as an orator, a general, and a statesman, is most loudly commended for having written a book on farming; and a very widely extended interest in agriculture among the people of Rome is inferred as well from other circumstances, as from the fact that so august a body as the Roman senate ordered the 28 books of Mago, the most voluminous writer on agriculture in Carthage, to be translated into Latin for the use of the Roman people. But under the ancient limitation of land to 7 acres, it would be absurd to expect to find any thing like farming as understood in our day, even though with the careful tillage of the spade, the largest crops may have been obtained, and we need not dwell on this part of Roman history. Rome had in later times, including a century previous to the Christian era, an agricultural literature unsurpassed by that of any other country, ancient or modern, with the exception, perhaps, of Germany, France, and England of the present day. The works of her best writers, or such of them at least as have been transmitted to us, abound in sound and sensible maxims. A few extracts may show the ideas and theories of agriculture then prevailing. "Our ances-

tors," says Cato, "regarded it as a grand point of husbandry not to have too much land in one farm, for they considered that more profit came by holding little and tilling it well." And Virgil says: "The farmer may praise large estates, but let him cultivate a small one." Varro, another well-known Roman writer, says: "Nature has shown two paths which lead to a knowledge of farming, experience and imitation. Farmers hitherto, by experiments, have established many maxims, and their posterity generally imitate them, but we ought not only to imitate others, but make experiments ourselves, not directed by chance but by reason." Speaking of the planting of trees as a means of protecting fields from high winds and storms, Pliny says: "Men should plant while young, and not build till their fields are planted, and even then they should take time to consider, and not be in too great haste. It is best, as the proverb says, to profit by the folly of others." The Roman farmers also paid much attention to the breeding of stock, though we have no means of knowing to what point of perfection they arrived, since on the decline of agriculture animals were suffered to deteriorate, and every thing in the shape of distinct races or breeds was lost. Columella mentions the points of a good milch cow to be "a tall make, long, with very large belly, very broad head, eyes black and open, horns graceful, smooth, and black, ears hairy, jaws straight, dewlap and tail very large, hoofs and legs moderate." The same writer prescribes a curious treatment of working oxen, as follows: "After oxen get through ploughing, and come home heated and tired, they must have a little wine poured down their throats, and, after being fed a little, led out to drink, and if they will not drink, the boy must whistle to make them." The Roman agriculturists whose works have come down to us are Cato, Varro, Virgil, Columella, Pliny, and Palladius. But notwithstanding all that has been, or may be said, there were obstacles, in the very nature and constitution of Roman society, which made it impossible for the agriculture of Rome to reach a very high development, even in a practical point of view. In the earlier days of the state, as we have seen, it was honored and followed as a pursuit by many who were justly distinguished in other walks of life, but then the nation was in its infancy, extremely rude, and with a small population and a limited extent of territory.* It was a time, too, when commerce was looked upon as degrading, and war and agriculture were the occupations engaging the whole attention of the Roman citizen, the farmer thinking himself able both to till and to defend his little farm. In this condition of things, though agriculture might be more developed than any other of the arts of peace, it could not attain a full and complete development, or even reach a very high point. As the empire grew in power

and wealth, the operations of agriculture were entrusted mainly to the hands of bondmen, who had little or no interest in the soil they tilled, and this alone was sufficient to prevent the art from reaching its most perfect condition. "In the agricultural economy of Rome," says Hallam, referring to the later periods of her history, "the laboring husbandman, a menial slave of some wealthy senator, had not even that qualified interest in the soil which the tenure of villanage afforded to the peasant of feudal ages. Italy, therefore, a country presenting many natural impediments, was but imperfectly reduced into cultivation before the irruption of the barbarians." (Mid. Ages, iii. 365.) This imperfect cultivation was, without doubt, characteristic of the agriculture of Italy to some extent during the whole history of the Roman empire, for during the first century at least, after the foundation of the city, it could hardly be regarded otherwise than as a little company of brigands; and during the later historical periods, the evils alluded to, arising from the constitution of society, had a powerful influence in retarding agricultural progress, though improvements were vigorously pushed in individual instances, and generally, perhaps, in the vicinity of the city. We have, however, the statements of many successful crops, which show the interest manifested by individuals in different places. Thus Pliny says, that 400 stalks of wheat all grown from one seed, were sent to the emperor Augustus; and at another time 340 from one seed were sent to the emperor Nero from Byzantium, in Africa, accompanied by the statement, that "the soil when dry, was so stiff that the strongest oxen could not plough it, but after a rain, I have seen it opened by a share drawn by a wretched ass on the one side, and an old woman on the other." As time passed on, improvements were made in the plough and other agricultural implements. The Roman plough, the exact model of which is still used in Italy, the south of France, and part of Spain, consisted of a beam to which the yoke was attached, a handle or cross-piece, by which the ploughman held a share fixed into a share beam, 2 mould-boards, or 1 at pleasure, a coulter, and sometimes a wheel, which could be used or not, at will. There were ploughs for heavy soils and ploughs for light ones, and, indeed, nearly every variety, so far as the principles of construction were concerned, which is known at the present day. The Romans also used spades, hoes, harrows, rakes, and some other farm implements. With all these, however, the farmer's work advanced but slowly. The first ploughing required 2 days for about $\frac{2}{3}$ of an acre, and the second 1 day. The difference of soils, and their adaptation to particular crops, were well understood. Manures were saved with care, the excrements of birds were especially valued, and judiciously applied; composts were made in suitable places about the house, hollows being scraped out in the form of a bowl to receive the wash from the house,

* Cincinnatus was appointed dictator by the senate 459 before Christ, 300 years before Cato wrote, and over 500 years before Columella.

and properly protected from the heat of the sun; lupines and clover were sown to plough in green, and the grain stubbles were often burnt over for the sake of the ashes. With these appliances they raised wheat, rye, barley, oats, flax, millet, pease, beans, turnips, the grape, and the olive. But perhaps the ancients suffered more inconvenience in their agricultural operations from their failure to apply the mechanical forces of nature as a substitute for hard labor, than from any other cause. Who can form an idea of the vast numbers who must have been employed in grinding the corn to supply the wants of a vast empire; and yet this is but one instance in which the mechanic arts languished; the gigantic forces of nature still waited the hand of a master to bring them into subjection, and employ them for the service of man. Even the water-wheel was not known till more than 100 years after Christ, and the wind swept over the hills of Europe till the 11th century without turning a single mill, while the mighty power of steam lay hid for ages, till at the call of genius it came forth to alleviate the toils of man, accomplishing the work of 1,000 hands by a single wave of its stalwart arm. Meanwhile the myriads toiled on without knowledge or hope, civilization was confined to the few whom the masses were compelled to serve, the progress of practical agriculture was slow, and even at the height of the glory of the Roman empire, far from reaching a point of development commensurate with its importance. With the exception of some casual allusions by Roman writers, we have no accounts of the agriculture of other nations at or before the time when the Roman empire had begun to decline. But there is every reason to suppose that the art had reached a greater degree of perfection in countries east of the Mediterranean and in Egypt, than in Italy. It is certain that the inhabitants of the east were familiar with many mechanical appliances unknown to the Romans, and there is reason to suppose that their agricultural systems were more complete. We know that the narrow strips around the northern and western shores of the Mediterranean were not the only thickly inhabited portion of the globe; that in some countries vast empires existed; that the people of China, India, Babylonia, Egypt, and other countries, must have been supported mainly from the products of the earth, but of their modes of producing them, of the details of their husbandry and of their domestic life, history is silent, and our attention is fixed upon Greece and Rome simply because they are historical, and have left authentic records of their progress in civilization. But we should not assume that those ancient nations which are not known to us through the historian, must have been inferior in all respects. They may, even in some departments, have excelled these heroes of antiquity. We know, indeed, that Rome herself, in the later days of her greatness, was supplied, to a certain extent, with the agricultural products of her conquered provinces,

that the military operations she was constantly engaged in, drew off for many years the best portion of her population, while the rapid growth of wealth and luxury, refinement and effeminacy at home, left the tillage of the soil more and more exclusively to the hands of menial slaves. Then set in that vast tide of conquest from the north which swept over southern Europe, pouring over Italy, France, and Spain, a race of barbarians, who gradually became absolute masters of nearly every country into which they penetrated, bringing on the long night of the middle ages, when might made right, and the will of the strongest was the only law which men were bound to respect. After the desolation of the Roman empire, which extended over what is now France, Spain, and some other countries, agriculture was extremely depressed, and the condition of the serf to whom the tillage of the soil was left, was in some cases even more hopeless and pitiable than that of the Roman slave who had tilled the soil before him, because he had more ignorant masters. Scarcely a gleam of sunshine in the shape of improved culture lights up the gloom of this period, with the important exception of the introduction of an extensive system of irrigation in Spain, where the Saracens appeared to check the inundation from the north. These eastern invaders from the well-watered lands of Syria, Persia, and Egypt, established in the peninsula what has been termed the southern system of agriculture, in distinction from the more peculiarly northern system of drainage, and developed the agricultural resources of Spain to an extent wholly unparalleled at that time in Europe, building reservoirs, canals, and aqueducts with immense labor and skill, laying the foundation of the Spanish glory, and raising the annual revenues of that part of Spain under their dominion to nearly 80,000,000 of dollars—"a sum," as Gibbon very aptly says, "which, in the 10th century, probably surpassed the united revenues of all the Christian monarchs." The traces of these gigantic works remain even to this day to mock the indolence and want of enterprise by which they are now surrounded. The downfall of the Roman empire took place in the 5th century, and from that time to the 16th century, when we begin to have many authentic records of the progress of agriculture, we find nothing, with the exception alluded to, on which the mind can rest with any degree of satisfaction. Bruges and Ghent were important manufacturing and commercial towns as early as the 11th century, and agriculture and manufactures there grew up together, even before a large part of Europe had risen from a state of barbarism, but the agriculture of Belgium and Holland was long in attaining the perfection to which it has now arrived. In Britain, the Romans had made many alterations for the better, during their 400 years of occupation, as they were accustomed to do in all their provinces, but the agriculture of the island was extremely

rudd even when they left it, by far the greater part being covered with forests and marshes. Then the Saxons overran the country, subsisting mainly by means of the chase and by keeping large numbers of cattle, sheep, and especially swine, which readily fattened on the mast of the oak and the beech, which everywhere abounded. In general, the only grains they raised were wheat, barley, and oats, and they had but small quantities of these. The results of their labor were so uncertain and insecure, on account of the total inefficiency of the laws, and the inability of the government to protect property and even life, that all attempts at improved agriculture would have been in vain, even if individuals had been disposed to engage in them. The suffering among the people was often intense, famines frequently occurred, and so little was done to furnish suitable winter food and shelter for the stock, that a large part of their cattle perished every winter, especially in the more northerly parts of the island. The proportion thus dying annually has been estimated at one-fifth part of the whole number in the country, while frequently the most terrible murrain swept off a far larger proportion. When agriculture is in a low and imperfect condition, the labors of the year are all concentrated upon seed-time and harvest. This was the case with the Anglo-Saxons, very few intermediate operations being practised by them. No hoed crops or edible vegetables were cultivated, and even as late as the reign of Henry VIII. Queen Catharine was obliged to send to Flanders or Holland for salad to supply her table. Neither Indian corn, nor potatoes, nor squashes, nor carrots, nor cabbages, nor turnips, were known in England till after the beginning of the 16th century.* The poor peasants subsisted chiefly upon bread made of barley, ground in the quern or hand-mill, and baked by themselves. The tenant peasantry had no security whatever for their property, till after the middle of the 15th century. If the estate was sold by the landlord they were obliged to quit all, giving up even their standing crops without compensation. They were even liable for the

debts of the landlord to an amount equal to their whole property, and it was not till after that time that they were held only for the amount of rent due from them. This picture of the misery and suffering which prevailed in Britain, will give a tolerably fair idea of the state of things in Europe generally at the same time. It is dark enough already, and perhaps no language would be sufficiently strong to express the whole truth, with regard to the low condition of agriculture and general civilization in the earlier part of the middle ages. Rather more attention, however, was paid to the culture of the soil in the religious establishments. The lands of the church under the charge of the monks, offering a more secure and permanent tenancy, were far better tilled, generally, than those of the lay nobility. Under their direction and partly by their own hands, extensive improvements were made in draining swamps and reclaiming extensive tracts from the sea, some of which, even at this day, still bear testimony to their skill and industry. The feudal system established on the continent at a much earlier date, was introduced into England soon after the Norman conquest in the latter part of the 11th century. Though beneficial in some respects as tending to ensure the personal security of individuals, which the then unsettled state of Europe constantly perilled, it operated powerfully against progress in agricultural improvement. The crusades against the Saracens of the Holy Land, undertaken at the close of the 11th century, and which continued, at intervals, for nearly 200 years, elevated the condition of the peasant in some degree, by increasing the value and importance of his labor, by making the acquisition of land somewhat easier, and by withdrawing from the country many hundred ignorant and despotic nobles, some of whom returned with a profitable recollection of the far higher culture and fertility of the beautiful Palestine. But the agriculture of this whole period was generally in a very low state of depression, as low indeed as was possible in an age making any pretension to civilization. The remark of Marshal Noailles to the king of France, even so late as 1745, would not inaptly apply to the tillers of the soil in all parts of Europe at that time and long previously: "The misery of the mass of the people is indescribable." We come to a period of which we have more authentic information, as we turn our attention to the present condition of agriculture and its progress within the last century. And here at first we feel some surprise at the slow rate of advancement of an art so important in itself, and so intimately connected with the whole progress and civilization of mankind. But a little reflection will show us that there are reasons for this slow growth. When the population of a country is limited, and capital scanty, the portions easiest to cultivate are alone selected for tillage, and men are compelled to content themselves with such a living as their weak social condi-

* The question naturally arises, how the people of those days could have lived, when so few of the crops now regarded as indispensable to comfort, were even known. A feast of a gentleman of the 12th, 13th, and 14th centuries is described in the "Treasure of Ancient and Moderne Times," published in 1618: "The meats served into the Table, was always in great chargers filled with pease and Bacon; Gammons of Bacon; huge Neats tongues salted; great pieces Beafe, boyled Poultry with Pottage about them; boyled Mutton, Veale, and other grosse food almost in every ordinary family; and they gorged in these victuals so long as they could cram any more into their bellies. Afterwards they brought in other meats, answerable to the former, but wasted and larded, oftentimes, with unweary lard, but it would go for Pigs and Hares. After this second service had stood awhile on the Table, well-neere to no effect, then came in more dainty meats of Fowles; as Mallards, wild Ducks, Ringdoves, young Pigeons, Partridges, Woodcocks, Quails, Ploviers, Turtle, and others of like kinde, which are carried away like the second service, almost never toucht, for they (good men) had filled their stomackes with the first course of meats, feeding hungrily on them, and drinking sower wines such as summer marreth, so they left the best and daintiest meats, indeede, for their varlets and base servants to feede on."

tion enables them to attain. But as society, in this struggle with nature, gradually becomes stronger, by the improvement of implements and the accumulation of capital and scientific knowledge, the richer soils of marshy lowlands are cleared of their forests and malarias, and brought into cultivation; while in every other way the earth is rendered more productive. But this is the result of social maturity, rather than of social youth; and we do not, therefore, look for great improvements in a country comparatively new and thinly settled. —Again, the differences of climate do much to prevent the rapid development of agriculture. The practices of one country are not adapted to another whose climate is different, and hence the experience gained in one country is of comparatively little value in another. Each nation must, in its turn, begin anew, as it were, and acquire by slow degrees, a knowledge of the modes of culture best adapted to its climate and position. Differences of elevation are similar in effect to differences of climate, and present the same obstacles to progress, while the infinite varieties of soil give rise to still other difficulties. Heavy soils and light sandy ones must be treated very differently, and a familiarity with one kind will hardly aid the experimenter in obtaining a good crop from the other. All these varieties of soil frequently exist in close proximity to each other in the same province or town, or indeed upon the same farm. Moreover, as agricultural operations require a comparatively large field, they tend to separate those engaged in them from each other, and thus is lost the great benefit which is derivable from a frequent and familiar intercourse between those occupied in the same pursuit. Improvements are not as soon suggested and known, or as likely to be carried to perfection, as they would be if this cause were not in action. And so farmers are now discussing some of the same questions which were argued with as much zeal 2,000 years ago. If, however, we take an impartial survey of what has been done within the last century, and especially within the last half century, we shall find that there has been some real and important progress both in the science and the practice of agriculture. Science, as applicable to the arts of life, is a deduction from an accumulation of well-authenticated facts, obtained by long and laborious observation and experiment; and the intelligent efforts of the last half century have laid the foundation, at least, of an agricultural science, even if they have done no more. —We may fix upon the 16th century as the time when Europe awoke from its long slumber. The invention of printing, the reformation, and the discovery of the new world, had excited a wholesome mental activity, filled the whole of Europe with wonder and amazement, and aroused a general spirit of enterprise. At this time, too, villanage and feudal despotism were beginning to disappear. These various causes concurred to create a general intellectual vigor,

which in its turn stimulated inquiry in every branch of knowledge, and led to discoveries and inventions, which tended to promote the comfort and happiness of all classes of society. From that time to the present, the slow and gradual elevation of the middle and lower classes has continued, and agriculture has gradually and steadily advanced. The first work on agriculture published in England was the "Booke of Husbandrie," in 1584, by Sir Anthony Fitzherbert, who styles himself "a farmer of 40 years' standing." This was followed by another volume by the same author, in continuation of the former, in 1599. In these works Fitzherbert points out the prevailing practices of his time, condemning some and approving others. "A housbande cannot thryve," says he, "by his corne without cattell, nor by his cattell without corne," and adds, "shepe, in myne opinion, is the most profitablest cattell that any man can have." From him it appears that marl was in common use in his day, as it had been in the island even when it was invaded by the Romans before the Christian era. Thomas Tusser's "Five Hundred Points of Good Husbandry," in a sort of doggerel verse, followed a quarter of a century later, and went through many editions. The editor of one published in 1812, says that he found difficulty in procuring a complete copy, "a proof that what was intended for practical use had been sedulously applied to that purpose. The copies were passed from father to son, till they crumbled away in the bare shifting of the pages, and the mouldering relic only lost its value by the casual mutilation of time." Tusser mentions carrots, cabbages, and turnips, as having first been introduced as kitchen vegetables. Then appeared "The Whole Art of Husbandry," by Barnaby Googe, "The Jewel House of Art and Nature," by Sir Hugh Platte, from whom we first hear of the introduction of white clover into cultivation in England; and in 1652, appeared the "Improver Improved" of Walter Blithe, a work full of judicious maxims and sound advice, giving us an insight into the prevailing practices of that time. Sir Richard Weston wrote about the same time, on the husbandry of Brabant and Flanders, and Hartlibb made important contributions to the agricultural literature of the 17th century. But the experiments and writings of Jethro Tull, in the early part of the 18th century, are among the first important attempts at real progress in the agriculture of modern times. Tull was undoubtedly a man of genius. Writers before his time had confined themselves mainly to plain statements of the practical details of farming, recommending such new practices as appeared to them worthy of adoption, and condemning the errors of their contemporaries. Tull did far more. He struck out new paths of practice, invented new modes of culture, and his investigations into the principles of fertility, fairly entitle him to the credit of being a "great original discoverer,"

though the errors into which he fell in his zealous enthusiasm, very naturally brought more or less discredit upon his whole theory, which it has been the work of time to dissipate. But we can excuse his failures and the errors of his system, when we consider that he, like all his predecessors, was groping in the dark, before chemistry and geology had made known the elements of the soil and of plants, and shown how the latter derive their support and nourishment. Tull invented and introduced the horse hoe, which has now become an exceedingly important and labor-saving implement, and the drill-husbandry. The latter had, indeed, been known previously, in Spain, and, according to some, in Germany also, but it was not known to any extent in England; and to Tull, more than to any other, belongs the credit of having introduced it into modern English agriculture. He also invented the threshing machine, though the flail was almost universally used in England till the close of the last century. His doctrine, that plants derived their nourishment from minute particles of soil, and that repeated and thorough pulverization was therefore necessary, not only as a preliminary preparation, but during the growth of the plant, led directly to the practice of drilling grain crops, and the awkwardness and prejudice of his workmen led to the introduction of the drilling machine, and the horse hoe, as a substitute for hand labor. So far Tull was right in practice, however incorrect the reasons of his theory may have been. The best practical farmers of the present day believe in, and practise, frequent, deep, and thorough pulverization of the soil, not because the plant is supposed to live on minute particles of earth, but to admit the air, and moisture, freely to the roots. Tull's theory of the nutrition of plants has not been without its followers, however, Duhamel himself having adopted, and labored to spread it. Tull believed, to some extent, in the use of manures, but chiefly as dividers of the soil, as a means of improving its physical texture, and not because he supposed them to furnish any nutriment to the plants themselves. His ignorance of the constituents of manures, as brought to light in modern days by chemistry, led him into this error. Had this science made such progress as to be able to teach the true nature of plants, and manures in his time, he would have been the last to adopt the mistaken views referred to. Tull's system of husbandry found very few followers at first, and those who adopted it were, in many cases, obliged to return to the old methods, for want of the necessary mechanical instruments for following his directions; but it has been more recently revived, mechanical skill making it practicable and comparatively easy of application, while thorough drainage, trenching, and subsoil ploughing, have gained the assent of most intelligent farmers. Even his drilling system, for wheat and other grain crops, has been extensively adopted in Great Britain, and is fast gaining favor. After Tull, we find

but very little progress in agricultural literature till toward the close of the last century. The chief gain in the art, in the intermediate time, was occasioned by an active competition in cattle breeding, by Bakewell, and others in England, which led to the most important practical results. Arthur Young, to whom, perhaps, the world is more indebted for the spread of agricultural knowledge than to any other man, was born in 1741, and died in 1820. His journeys to obtain information on agricultural subjects, and his writings, had a powerful influence in creating a love for agricultural pursuits among the learned. He left numerous works, all of which are valuable as having contributed to agricultural progress. Arthur Young was one of the pioneers in improvement. His searching inquiries and experiments on different soils, to ascertain the real causes of fertility, in the course of which he applied a great variety of substances, with a view of determining their effects, laid the foundation, at least, for more exact researches into the principles of fertility afterward. These experiments were conducted with special ardor from 1788 to 1786. He first established the fact that common salt was a valuable manure, though it had been frequently recommended before his day. Previous to his time ammonia was thought to be injurious to vegetation, and natural philosophers had asserted that the food of plants was contained in acids. Young tried it in very many cases, and says: "the volatile alkali continues in this, as in every trial, to triumph." And again: "the volatile alkali has never failed being of great service," and "in every repetition we can make," he says again, "upon volatile alkali, its superiority to all other additions is more and more confirmed." He tried various experiments also to learn the effect of the sun's rays on the soil, and came to the conclusion "that covering the soil is beneficial to it." Hence we may infer the error of the ancient practice of summer fallowing, which left the ground wholly unoccupied with crops every second or third year, a practice which continued in England down to a comparatively recent period, and even now prevails in many parts of Europe. He also found that nitrogeous manures increased the power of plants to avail themselves of mineral manures, thus showing the advantage of a proper use of both classes, a conclusion whose truth has been still more recently established by Lawes and others. He also tried the effect of different gases on vegetation, and perceived the value of a knowledge of chemistry to practical agriculture. In 1786, he says: "To imagine that we are ever to see agriculture rest on a scientific basis, regulated by just, and accurately drawn principles, without the chemical qualities of soils and manures being well understood, is a childish and ignorant supposition." Such were some of the efforts of Arthur Young; they may be found embodied in the "Annals of Agriculture," and other useful treatises. But one of the first systematic works on the subject, which can be

said to have really advanced the art of agriculture, was the "Practical Agriculture, or complete System of Improved Agriculture," by R. W. Dickson, which Thær, who had it translated and published in Berlin, in 1807, calls the first truly scientific work of the English, not even excepting Young's writings. Dickson's chief merit, however, is his excellent collection of the many valuable experiments and statements of distinguished members of the board of agriculture, and other farmers. In the period embracing the close of the last century, and the beginning of the present, we find many important additions to the literature of agriculture. Such are the works of Marshall, the admirable works of Young already alluded to; Elkington's "Mode of Draining Land," described by Johnstone; "Davison's Phytology," "Modern Agriculture," and "Synopsis of Husbandry," by Donaldson; the "Gentleman Farmer," by Lord Kames; "Anderson's Essays;" the "Communications to the Board of Agriculture," and numerous agricultural reports. "The Experienced Farmer," and many others might be mentioned, all of which contributed, more or less, to awaken the spirit of inquiry and improvement, which have eminently characterized English agriculture for the last 50 years, and made it a model for the rest of the world. Nor has the agriculture of Scotland felt the influence of the spirit of progress in a less degree. In 1768 Lord Kames, in the "Gentleman Farmer," very forcibly described its miserable condition at that time. He says: "Our draught horses are miserable creatures, without strength or mettle; our oxen scarcely able to support their own weight, and 2 going in a plough, led on by 2 horses; the ridges in the fields high and broad, in fact, enormous masses of accumulated earth, that could not admit of cross ploughing or cultivation; shallow ploughing universal; ribbing, by which half the land was left untilled, a general practice over the greater part of Scotland; a continual struggle between corn and weeds for superiority; the roller almost unknown; no harrowing before sowing, and the seed sown into rough, uneven ground, where the half of it was buried; no branch of husbandry less understood than manure; potatoes generally planted in lazy beds; swine but little attended to, and very few farms in Scotland proportioned to the skill and ability of the tenant!" "What a contrast," exclaims Sir John Sinclair, 40 years after, "to the present state of Scotch husbandry; and it is singular that, with hardly an exception, these imperfections have been removed. Had it not come from so high an authority, it is hardly possibly to credit, that within the memory of so many persons now living, our agriculture could have been so miserably deficient, as it seems to have been at that time." But in the course of these 40 years the Scotch farmers had acquired a habit of reading, and agricultural books were extensively distributed among them. Beside this, many

of them visited other countries for the purpose of obtaining information, and observed the improved practices prevailing there to return and introduce them at home. Sir John Sinclair was born in 1754, and died at Edinburgh in 1835. His writings were numerous, and important. Hartlibb, a century and a half before, and more recently Lord Kames in the "Gentleman Farmer," had pointed out the utility of a board of agriculture, but it was left to the zeal and untiring effort of Sir John Sinclair, to call into life that valuable auxiliary to agricultural progress, and the board was created in 1798. To its establishment, more than to any other movement of that day, England is indebted for the present high and prosperous state of her agriculture. It brought men together from all parts of the kingdom, made them acquainted with each other's views, and with the modes of culture prevailing in sections of which they had previously been ignorant. Take away from our present knowledge of agriculture, or indeed of any other practical art of life, all that has been learned from the mere mental stimulus of associated effort and the attrition of mind upon mind, and there would be a comparatively small amount left. It was through the encouragement of the board of agriculture chiefly that Sir Humphrey Davy was led to investigate the elements of the soil, and to apply the science of chemistry to the improvement of agriculture, and here begins, properly, the real progress of the art; for without a knowledge of the simple substances of nature, agriculture could not be expected to attain the rank of a science. Previous to this time it had been merely empirical, and handed down from generation to generation, with only here and there an instance of bold departure from the old-established routine, as in the case of Tull, and little real progress had been made. The lectures of Davy before the board of agriculture from 1802 to 1812, therefore, mark an important epoch in the history of modern agriculture. At that time it first began to assume the shape of a science, and ceased to be merely a collection of facts, imperfectly understood and erroneously classified. The substance of these lectures was embodied in his "Elements of Agriculture," published in 1813, and translated into German in 1814, and into French in 1829. This work offered the very kind of information which Arthur Young declared to be the great want of his day. It opened to the reflecting farmer new and interesting views of the principles of fertility and vegetation. It embodied the results of the labors of Darwin, Knight, De Candolle, and other distinguished vegetable physiologists, explaining the functions of the roots and leaves, and the construction of plants, teaching that all vegetable substances consisted of charcoal and gas, that all vegetable tissues were made up principally of various combinations of carbon, hydrogen, oxygen, and nitrogen or azote, only a small part of the plant being formed from the materials of the soil itself.

Davy showed also how plants, soils, and manures could be analyzed, and manures selected which would furnish the elements needed by the different varieties of plants. He found, as Tull had previously asserted, that plants absorb nourishment only in the form of gas or solution in water, and hence inferred that that manure was the best, other things being equal, which slowly and gradually furnished the greatest amount of soluble matter adapted to the wants of the plant through the various stages of growth. Davy continued his experiments with great diligence. We find him, in 1807, trying to ascertain the effects of various salts on barley, grass, &c., in light, sandy soils, applying twice a week diluted solutions of sulphate, acetate, bi-carbonate, and muriate of potash, sulphate of soda, and nitrate, muriate, sulphate, and carbonate of ammonia; finding, as Young had found, that plants furnished with carbonate of ammonia grew most luxuriantly, a result which had been anticipated from the composition of carbonate of ammonia. Davy experimented on specimens of guano sent to the board of agriculture in 1805, the existence of it in large quantities on the South Sea Islands having been pointed out by Baron Humboldt. In 1806, elaborate analyses of guano were published by Fourcroy and Vauquelin. Davy, writing at this time, says: "The dung of sea-birds has never been used in this country." What changes a half century has produced in this respect! Davy recommended the use of bones as a manure, not so much because they contained phosphate of lime, as because they were filled with decomposable animal matter, as gelatine, cartilage, fat, &c. The enormous sums now paid for this very phosphate of lime, rendered easily and speedily soluble by the application of sulphuric acid, show clearly enough what great progress chemistry itself, in its application to agriculture, has made since his day. But though the results obtained by Davy were imperfect, and in some cases erroneous, they yet made important advances in an almost untrodden path of investigation, and his discoveries form a suitable introduction to our survey of the present condition of agriculture both in England and in this country. The facts established by his researches as to the effect of ammonia on vegetation, may be regarded as the starting point of modern scientific investigations into the properties of this substance when used as a manure; for, though Young first led the way in observing its practical effect on plants, his conclusions, from his want of chemical skill, had not the scientific certainty which characterized Davy's, and which was necessary to give them their highest value. It may indeed be said that he was the means of drawing the attention of chemists to this particular branch of their science; for through the influence of the reputation he gained, the thoughts of other scientific men, and especially the chemists on the continent, were turned in this direction. In general, the literature of agriculture had advanced more

rapidly on the continent than in England. In Germany, especially, many writers had treated of the subject more particularly in works on political economy. In the latter half of the last century, particularly, many treatises of practical value appeared, such as those of Kretschmar, Reichart, Stisser, and Sprenger. At the same period the distinguished Duhamel wrote in France, and adopted, and labored to spread the views of Tull in regard to the nourishment of plants. In his treatise on the cultivation of the soil, he endeavors to determine the principles of agriculture by theories deduced from experiments, which subsequently received a more scientific form in the "Elements of Agriculture," published in Paris in 1771. Duhamel, Buffon, and others, by their superior genius, made the study of rural economy attractive to scientific men in France, and hence there has been more original research in the department of agricultural chemistry, vegetable physiology, and other kindred branches, than in any other country except Germany. As early as 1780 there were no less than 13 agricultural societies in France, with about 19 auxiliary societies. The survey of France by Arthur Young, in 1787, and '89, also did much to excite an interest in the improvement of the soil, and to make the peculiarities and wants of the country more familiarly known even to Frenchmen themselves. Merino sheep were brought into France in 1776, and kept under charge of the government for the improvement of the stock of the country. Bonaparte, in his liberal policy toward agriculture, greatly increased the number of societies, established professorships, botanical gardens, &c., all of which concurred to elevate the study of agriculture in the estimation of those capable of bringing to its aid the principles of the abstract sciences; and this tendency has influenced the scientific minds of France to the present day, though, strange to say, the practice of the country has not kept pace with the development of theory, and in many of the departments the methods adopted and the implements used are still extremely rude. This is owing partly to the division of property, the holdings, as a general thing, being very small.—The agriculture of the United States, previous to the present century, demands a passing notice. The earliest settlers found the country a wilderness, with many varieties of climate and soil, of which they were entirely ignorant, and to which the knowledge they had obtained in the mother country did not apply. Thus they had to contend with innumerable obstacles, with the wildness of nature, and their ignorance of the climate in addition to the hostility of the Indians, the depredations of wild beasts, the difficulty and expense of procuring seeds and farming implements, &c. These various difficulties are quite sufficient to explain the slow progress they made in the way of improvement. For many years agriculture was in an exceedingly backward and depressed condition. Stock and tools were poor, and there were obstacles and pre-

judices against any "innovations" in the established routine of practice. This state of things continued for many years, with very little change. Jared Eliot, a clergyman of Connecticut, one of the earliest agricultural writers of America, published the first of a series of valuable essays on field husbandry, in 1747; but with this and a few other exceptions, no real efforts were made to improve farming till after the revolution, when the more settled state of the country and the gradual increase of population, began to impress the intrinsic importance of the subject upon the minds of a few enlightened men. They sought by associated effort to awaken an interest in the subject, and spread abroad valuable information. The South Carolina agricultural society was established in 1784, and still exists, and the Philadelphia society for the improvement of agriculture, established in the same year, and a similar association in New York in 1791, incorporated in 1798, and the Massachusetts society for the promotion of agriculture, established in 1792, were active in their field of labor, and all accomplished important results. The correspondence at this period, between Sir John Sinclair and Washington, shows how anxious was the father of his country to promote the highest interests of the people by the improvement of agriculture. But all the efforts of the learned, and all the investigations of the scientific, prove comparatively unavailing, unless the people themselves, the actual workers of the soil, are prepared to receive and profit by their teachings. Many years elapsed before the habit of reading became sufficiently common among the masses of the actual tillers of the soil, to justify an expectation that any profit would arise from the annual publication of the transactions of the several societies. The improvements proposed fell dead upon the people, who rejected "book farming" as impertinent and useless, and knew as little of the chemistry of agriculture as of the problems of astronomy. Such has been the increase of intelligence, and the growth of liberal ideas among all classes of men during the last half century, both in this country and in Great Britain, that we, at this distance of time, can with difficulty realize the extent of the prejudices which blinded the eyes of the people of those days. The farmer who ventured to make experiments, to strike out new paths of practice, or to adopt new modes of culture, subjected himself to the ridicule of a whole neighborhood. For many years, therefore, the same routine of farm labor had been pursued in the older settlements, the son planting just as many acres of corn as his father did, "in the old of the moon," using the same number of oxen to plough, and getting in his crops on the same day, after having hoed them the same number of times, as his father and grandfather did. All farm practices were merely traditional; no county or town agricultural societies existed to stimulate effort by competition. There were no journals devoted to the spread

of agricultural knowledge, and the mental energies of the farmer lay dormant. The stock of the farm was such as one might expect to find under such circumstances; the sheep were small, and ill cared for in the winter, and the size of cattle generally was but little more than half the average of the present time. The value of manures was little regarded; the rotation of crops was scarcely thought of; the introduction even, of new and labor-saving machinery, was sternly resisted and ridiculed by the American farmers of that day, as well as by the English laborers. It was long before the horse-rake was brought into use in opposition to the prejudices it encountered. It was equally long before the horse-power threshing-machine was adopted. In some parishes of Great Britain even so late as 1830, the laborers actually went about destroying every machine they could find. Now, on the contrary, the use of the flail is a drudgery which very few are willing to submit to, and steam power has in many instances been substituted for the horse, while new and improved implements of all kinds are sought to an extent unprecedented in the history of agriculture. Changes are gradually made everywhere, and the success which attends the introduction of new implements disarms prejudice. Within the last half century, chemistry, the indispensable handmaid of agriculture, has grown with great rapidity, and in each new discovery some new truth applicable to practical agriculture has come to light, while willing experimenters have labored in the field to prove the truth or falsity of the theories proposed, and thus the well-established facts from which the science of agriculture is derived, and the sound theories deduced from these facts, are constantly increasing in number. The substitution of animal for manual power, and still more the saving of animal power by the substitution of natural and mechanical forces, are the surest indications of improvement. From the changes which have grown up in these respects, and from the more constant use of chemistry, to determine the qualities of soils and manures within the last 50 years, we may safely assert that the progress made during that period, or perhaps within the last twenty years, is wholly unparalleled. A brief allusion to the advance in each of these departments will illustrate this fact.—And first, with regard to farm implements. In the time of the Saxons, in England, as we have already seen, the plough was an extremely rude and uncouth implement. It was made by the ploughman himself, under the compulsion of a law forbidding any one to hold a plough who could not make one, or to drive until he could make the harness. The progress made previous to the time of Jethro Tull, was comparatively slight, either in the manufacture of the plough or in any branch of agricultural mechanics. Tull, as we have seen, invented the horse-hoe and the drilling-machine. Both of these were then rude, but they since have been vastly improved in their details. The plough was generally made

of wood till the beginning of the present century, but its form has since passed through many changes. The old Dutch plough, one of the best ever brought into extensive use previous to the recent forms of the iron and steel one, was patented in England in the year 1780, the design having been brought over from Holland by Dutch engineers. This implement is said to have been first manufactured under the direction of Walter Blithe, author of the "Improver Improved," already mentioned as one of the most important early works on agriculture. It went under the name of the Rotheram plough, from the place of its manufacture, but was generally known in this country as the Dutch plough. It was all made of wood, except the coulter, draught rods, and share, the mould-board being plated with iron. This was probably the best wooden plough ever invented, though as it was made by the village blacksmith without a fixed pattern, it was liable to many modifications varying according to the skill of the maker. It was difficult even for the same maker to form two ploughs exactly alike in every respect. The old "Carey plough" was also familiarly known in the United States for many years, with its wooden mould-board, plated over with tin, sheet iron, or sometimes with saw-plate, wooden land-side and standard, and clumsy wrought-iron share. This was difficult to hold, and required twice as large a team as that now needed to do far better work. The "Bar side-plough," once a great favorite, also, had a wooden mould-board, and did very poor work. The first patent issued in this country for a cast-iron plough is believed to have been that obtained by Newbold, of New Jersey, in 1797. Cast-iron ploughs had, however, been manufactured by Small, in Scotland, as early as 1768, and the founding of cast-iron having been introduced about the same time, it occurred to the manufacturer to have exact patterns of the principal parts of his plough, as the mould-board, the sole, and land-side, cast, that he might secure the greatest possible uniformity in the manufacture. This is the origin of the cast-iron plough used for many years in Great Britain, but whether the American inventor had any knowledge of the existence of the Scotch plough is not known. The state of feeling among farmers at the close of the last century and the early part of the present, as already mentioned, was such as to prevent the adoption of new improvements to any extent, and this improvement of course gained favor but very slowly. The efforts of modern inventors have been directed mainly to overcoming the friction and resistance, by an improved construction of the mould-board and by the use of better materials. The plough cannot yet be regarded as a perfect implement of its kind, but it has most certainly been fast approaching towards perfection of late years, and the mode of manufacture has improved to an equal extent, the business having increased so much as to require the employment of a large amount of capital. Nor has

the improvement in other farm implements been less marked than in the plough. Spades and hoes are lighter and better constructed than formerly. The reaper and the mower have gained a firm footing, even within the last 10 years; for though the first reaping-machine known was used 1,800 years ago, in the shape of knives set into the end of a cart which was pushed along by oxen, and the wheat thus cut, and in modern times many efforts have been made, since the beginning of the present century, to construct such an implement, it is but a few years since the economy and practicability of using the machines was fully established. But the number of the machines made and sold in a single establishment in Chicago, to supply the demand in the western states, alone exceeded 4,000 in 1856, while innumerable other establishments exist in other parts of the country, doing almost as large a business as the one alluded to. Nearly 200 different patents have been granted within the last 8 years for reapers and mowers, and at a trial recently instituted and held at Syracuse, N. Y., nearly 100 different patents were entered for competition. As labor and time-saving machines are now looked upon as wholly indispensable by all who raise grain and hay on a large scale, the reaper and the mower may be regarded as types of the present, as the sickle and the flail are types of the past. Among the other labor-saving implements which are now generally introduced upon farms of any extent all over this country and Great Britain, are the horse-rake, the improved horse-hoes, the seed and corn-sowers, the broadcast seed-sower, the improved sub-soil and trenching ploughs, the straw and root-cutters, the cultivators, the threshing and winnowing machines, and many others of equal importance. It is safe to say that the improvement in the implements named, made within the last half century, has enabled the farmers of the United States to accomplish at least double the amount of labor with the same number of teams and men. They can plough deeper and more thoroughly, with less power; hoe and spade with less expenditure of manual labor; thresh hundreds of bushels of grain with the machine where only tens could have been threshed with the flail; rake 10 acres with the horse-rake more easily than 1 by hand, and reap from 12 to 15 acres of grain in less time and with greater ease, with the reaper, than 1 with the sickle or the cradle; to say nothing of the infinite variety of other operations in which both time and labor are saved by the use of machines instead of the slow drudgery of hand labor; and thus many millions of dollars are annually saved by these improvements in agricultural mechanics. This is a grand and practical advance over all former periods in its history, and promises a future development of the resources of agriculture almost beyond the power of language to describe.—The progress which has been made in the application of chemistry to agriculture is hardly less gratifying. For

though from year to year there may seem to be little progress, yet when we compare any two periods of 5 or 10 years, the increase of practical knowledge derived from the investigations of the agricultural chemist, as well as its importance, is very perceptible. The most useful discoveries in agricultural chemistry have been made within the last 15 or 20 years, for though the labors of Young, Davy, and others, were exceedingly valuable, as opening the way for later investigations, yet the processes of chemical analysis have become so much more complete and reliable since the time of their labors, as to make recent results far more valuable. Indeed, almost all that was known with certainty previous to 1840, may be ascribed to the researches of Saussure, and to Sir Humphrey Davy, for nearly all that appeared in the shape of original researches up to that time, was only a meagre abstract of their admirable works. Within the same period, nearly, the attention of practical farmers has been awakened to the importance of applying the results of chemical investigations. Probably Professor Liebig has contributed more than any other man to this awakening. His first publication in 1840, originally designed as a report on the progress of agriculture to the British association for the advancement of science, opened a new world of thought and study, and in some respects, essentially modified the practice of all civilized countries. To give only a single instance of this: he remarked in his "Organic Chemistry" that, "to manure an acre of land with 40 pounds of bone dust, is sufficient to supply 3 crops of wheat, clover, potatoes, turnips, &c., with phosphates, but the form in which they are restored to the soil does not appear to be a matter of indifference. For the more finely the bones are reduced to powder, and the more intimately they are mixed with the soil, the more easily are they assimilated. The most easy and practical mode of effecting their division, is to pour over the bones, in the state of fine powder, half of their weight of sulphuric acid, diluted with 3 or 4 pints of water." The grand leading idea contained in this and similar propositions of Liebig's, opened the way for the whole system of artificial manuring which has extended so far in modern times. Before this time the farmer had confined himself to the use either of a compost of animal and vegetable materials, or of other simple substitutes, as ashes, soot, salt, or something of the kind, not in accordance with any fixed principle derived from reasoning or the results of observation, but simply because experience had shown them to be beneficial. His idea was that sulphuric acid—the vitriol of commerce—would make the neutral phosphate of lime soluble, and give it a powerful action in the soil. For the subsequent discovery and use of mineral phosphates, we are indebted to the same source, the development and application of the views first advanced by Liebig. Immediately after, experiments were instituted, and with such satisfac-

tory results, that manufactories were established in England, and the importation of bones from Germany and other countries became of great importance to commerce as well as to agriculture, while the earnest researches of scientific men soon discovered the most approved formulas for the manufacture of superphosphate of lime, the first being given by Prof. Johnston (Trans. High. Soc. 1845, pp. 91 and 96), another by Wm. Lawes (Jour. R. A. Soc. V. pp. 68-596). Thus the best methods of preparation were made known both by scientific and practical men. All must admit the advantages of these discoveries, for though the farmer may be liable to be deceived in the purchase of a particular kind of superphosphate, yet there is no longer any doubt of its exceeding value as a fertilizer when properly made, while its introduction rendered substances previously of little worth, easily and quickly available for the nourishment of plants, and hence very valuable. Guano also claims our attention. This substance has come into use entirely within the last 15 years, or since 1840; for though it was first brought to public notice by Baron Humboldt and by Sir H. Davy, as already stated, yet it was not till that year that it was used at all in England. Twenty casks were then imported for experiment, and so satisfactory were the results, that the importation to England alone increased to nearly 2,000 tons in 1841, and in 1845 to over 200,000 tons, the English trade in that year employing 679 vessels. Since then the business has become of large commercial and agricultural importance in all parts of the civilized world. The means of detecting an inferior article, or of discovering adulterations of the true Peruvian guano, have become well known to chemists, and are accessible to every farmer who will take the trouble to apply them. They are from time to time recommended in the agricultural journals. In speaking of the benefits conferred on agriculture by chemistry, we should refer also to nitrate of soda, which was first recommended about the year 1831, and of which many tons are annually imported into England and applied to the soil; to the application of mineral phosphates instead of bones, which Liebig's explanation of the reasons why bones were valuable as a manure, first suggested; to the habit now so prevalent, of preserving and applying liquid manures, which has grown up chiefly in consequence of the facts disclosed by the analyses of various substances known under this name; to the recently introduced and extensive manufacture of blood manures, and to the innumerable other substances manufactured and sold to be used on the land, of which some have proved to be really valuable, while others are of doubtful utility. Not the least important of the more recent investigations of chemistry are those of Prof. Way, which show that all fertile soils possess the power of absorbing and retaining alkaline substances, as potash and ammonia, from solution in water by means of a class of

double silicates of alumina and lime or soda. These investigations are among the most interesting and valuable contributions recently made to the science of agriculture. Chemistry has also improved our farm economy, by offering suggestions in regard to the relations of different kinds of food to the animal wants, and in regard to the effect of more complete shelter from the cold, and of temperature in general, as to the quantity of food necessary. Comparatively recent investigations lead to the conclusion that certain substances in plants are absolutely identical with the flesh and blood of animals, that is, that some vegetable substances actually contain the materials of the animal body ready formed, differing indeed, in outward appearance, but literally the same in composition, and the analysis of plants pretty accurately indicates their relative nutritive qualities, as compared with plants of the same general family, as vegetables with vegetables, grains with other kinds of grain, &c. Chemists can now determine the nitrogenous substances in plants, which are tolerably uniform in their combinations, with great certainty, and these are known to form the tissues of the body; while the non-nitrogenous compounds, such as starch, sugar, gum, &c., which can be determined with almost equal ease, go to promote the respiration and heat of the animal system. Other and still more recent investigations indicate the importance of a variety of food, so as to secure a proper proportion of the albuminous and the farinaceous elements, and that plants richest in nitrogen are not, necessarily, on that account alone, the most valuable or best adapted to produce that part of the body which is identical with them in composition. The value of many substances as food has been determined with a considerable degree of certainty; among them are the linseed and other oil cakes, and especially within a very short time, cottonseed cake, a substance which, though it is now but little known in consequence of its very recent introduction into the market, yet seems to be destined, at no very distant period, to become of great practical value. Yet in the light of all these and many other facts of equal importance, there are, and probably always will be, some who assert that chemical science and the rules which it lays down, can confer no benefit on agriculture. Mere abstract principles are of no special value except in a strictly scientific point of view. The acquisition by farmers of the habit of applying scientific truths is slow and gradual, undoubtedly, and must be the work of time. But the fact that a true principle is not immediately applied to practice, does not prove that it will produce no practical good effect. It may be ages before a new doctrine exerts its proper influence, yet, if really true, it will sooner or later become known to those whose interests it most nearly concerns. First they will hear it, then understand it, and in the end they will reduce it to practice, and they and the whole world will profit by it. Ac-

cordingly, an impartial survey will show that the actual production of the means of supporting life has largely increased, as the true principles of cultivation have become better known and understood. The average yield per acre of some of the cultivated grains, as wheat, for instance, has nearly quadrupled in countries where these principles have gained the strongest hold, even within the memory of men still living, and this increase is not merely proportionate to the greater number of producers, or the additional acres brought under tillage, but an absolute increase per acre. Should not this be ascribed to increased facilities, and a better knowledge of the modes of production? The same fact is manifest amongst us every day, the most skilful and intelligent cultivators, other things being equal, reaping the largest and most profitable crops. It is difficult to ascertain the amount of crops, or the average yield, of very distant times past, but the average yield per acre of wheat in the 11th century, was estimated by the highest authority of that day, the author of "Fleta," at only 6 bushels. So 200 or 300 years later, in 1390, 57 acres on a farm at Hawsted, yielded only 866 bushels, and on an average of 8 years little more than that. No other cause than the wretched system of tillage can be assigned for this small yield, and it is safe to say that the average crop, on a given number of acres, has trebled since that time, in consequence of the impulse which modern agriculture has received from the mechanic and the chemist, while the manual labor required has been very materially lessened. The actual productive power of Great Britain in the article of wheat alone, increased during the half century from 1801 to 1851, to the extent of supporting an additional population of 7,000,000, an increase which can be ascribed with confidence, mainly to improved cultivation. So in every country where agriculture receives the attention it deserves, the productive power of the soil has largely increased. Even the Atlantic states of the Union, where the system of cultivating the soil without maintaining its fertility by a proper treatment, prevailed for many years, are not an exception, since the condition of agriculture is rapidly improving in the oldest of them, where this system was earliest begun, and the general average of crops, with the exception of the potato, is increasing from year to year as a more proper culture is introduced, and persevered in, the farmer being led to improve his practice by the pressure of an increasing population, and constantly rising prices. In New England, for instance, one of the oldest sections, the general average yield of Indian corn per acre has risen to about 85 bushels per acre, while crops of 50 and 60 bushels per acre are by no means uncommon, and 80 and 100 are sometimes obtained by careful tillage. The situation and soil of New England are not such as to make it what is called a wheat growing region, and this fact, which farmers were long in understanding, has caused a great decrease in

the extent of land devoted to this crop. Indian corn, root crops, and all the varieties of fruit suited to temperate latitudes, are found to be more certain and remunerative, and attention is given mainly to them. In the mean time the system of farm management is gradually improving, new implements to facilitate labor are introduced, and much greater care and economy than formerly in regard to manures everywhere prevails, most farmers having good barn cellars arranged for its preservation, into which peat and loam are carried in large quantities, and composted from time to time during the winter as absorbents and divisors. The spirit of inquiry and enterprise in agriculture was never more general or encouraging than at the present moment. Societies have been established in all the states, and in most of the counties; and in Massachusetts a department of agriculture is organized as a branch of the government, to collect, arrange, and systematize all the latest reliable information on the subject for distribution among the people, and to superintend the development of the established policy of the state. In the middle states societies are equally active in efforts to raise the standard of their agriculture, and have adopted a similar liberal policy, and in some, especially the great state of New York, a high degree of improvement has been reached. The western states are more strictly and exclusively agricultural than any other section of the country. Most of them publish annually, at the expense of their governments, valuable reports on practical agriculture, for extensive circulation among the people. To give some idea of the effects of this policy, and of the fertility of the western states, we may refer to the exports of grain and breadstuffs from the port of Chicago alone, a city which 20 years ago had scarcely a recognized existence even as a town, and which owes its entire prosperity to the agricultural enterprise of Illinois, Indiana, and the adjoining states. It is now the greatest primary grain depot in the world, the exports being nearly twice as great as those of St. Petersburg, and exceeding those of Galatz and Ibrail combined, by upwards of 5,000,000 of bushels annually. This city is but one of the many centres for the receipt of agricultural produce direct from the producer; and St. Louis, Cincinnati, Cleveland, Buffalo, Rochester, and New York, with many other cities of nearly equal size, must be taken into account, if we would make a proper estimate of the vast importance of the agriculture of the United States, which not only contributes very largely to the prosperity of the citizens of the country, but also furnishes an almost inexhaustible granary for other nations. Notwithstanding the immense amount already produced, however, the resources of the west have but just begun to be developed as they are destined to be hereafter; for thousands of miles of virgin prairie still stretch away beyond the line of civilization, waiting only the hand of the farmer to contribute their abundant stores

to the support of man. The southern states are also large producers of grain, but are mainly devoted to the raising of cotton and sugar, both of which are exported in large quantities. The present condition of practical agriculture in Great Britain has already been alluded to, as worthy of imitation in other countries of similar climate and soil. But the points in which progress is most distinctly seen, are the extensive culture and use of root crops, the general system of thorough drainage, the introduction and use of new and improved implements of husbandry, and the breeding of stock. The land, unlike that of the United States, where, as a general rule, the farmer is the owner as well as the cultivator, is held chiefly in large estates, concentrated in the hands of a few individuals, and leased to the tenant farmer, who either tills it himself or sublets it to others. But few, therefore, of the actual tillers of the soil are owners of land. Associated effort has done much to waken a lively interest in the subject, both among the nobility and the people. The royal agricultural society, established in 1839, with its ably conducted journal, the Highland agricultural society of Scotland, and the royal society of Ireland, are doing all in their power to develop the agricultural resources of the country. Many valuable agricultural journals are well supported and widely circulated. In France the tendency for many years has been to the division of landed estates, and but comparatively few large holdings exist at the present time. Subdivision of property in the hands of small proprietors without capital, prevents the development of practical agriculture; and in many departments of France, its condition is still rude, though in others it is more advanced, and, in some points, worthy of imitation. The government has its minister of agriculture, and supports agricultural schools and veterinary establishments, while the "Journal of Practical Agriculture," and other agricultural periodicals, are doing much to improve both the science and the practice of the country. With regard to the division of landed property, the same state of things prevails also in Belgium and Holland as in France, the agriculture of those countries being characterized rather as gardening than farming. The extreme care and economy of manures, and the careful application of liquid manures in these countries, are often referred to as worthy of imitation. In Germany, as already seen, the science of agriculture has been extensively developed, many of the ablest chemists having devoted their lives to this pursuit. Thaer, Schwertz, Köller, Stöckhardt, Liebig, and many others, have a world-wide reputation as the reward of their services in this direction. Here also, as in most other countries, associated effort is made to advance the condition of agriculture, and with good success. Thus there is gratifying evidence of progress in most civilized countries at the present time, and the productive powers of nature were never more completely developed.

AGRIGENTUM, an ancient Sicilian city, the rival of Syracuse in wealth and magnificence, built on a lofty eminence on the S. W. coast. It was settled by a colony from Gela, about 582 B. C. During the 5th century it attained its highest prosperity, when its population was probably above 200,000. The city contained many fine public edifices, the most celebrated of which was the temple of Jupiter, of which few traces remain. It was repeatedly involved in hostilities with Carthage, and in 407 B. C., was taken and razed to the ground by an army of that nation. It was afterward rebuilt, and in 210 B. C., became permanently subject to Rome, and while attached to that empire was one of the most prosperous of the cities of Sicily, carrying on a great trade in corn, wine, and oil, for the production of which its fertile soil was admirably adapted. The Saracens captured Agrigentum in A. D. 827, and kept possession of it till 1086. Girgenti, the modern town, has a population of 18,569, and exports sulphur more largely than any other part of the island. Its other chief exports are corn, oil, almonds, and soda. Its churches, convents, and other public edifices, have little architectural merit, with the exception of the library, museum, and public seminary.

AGRIONIA, yearly festivals held in honor of Bacchus, among the Boeotians. It was customary for the women to make a pretended search for the god, and finally to desist, saying that he had escaped to the Muses.

AGRIPPA VON NETTESHEIM, HENRY CORNELIUS, philosopher and alchemist, born at Cologne, Sept. 14, 1486, died at Grenoble, 1585. This remarkable man was born of a noble family and received an excellent education. His whole life was spent in restless vagabondism, and his great talents dissipated in vain strivings after universal knowledge. He was linguist, statesman, soldier, physician, theologian, and chemist. Having engaged in some peasant insurrections in the south of France, he retreated to Paris, where he held public discourses, and the reputation he thus acquired gained him a professorship of Hebrew, at Dole, in Burgundy. Accused of heresy, or more probably magic, he fled to England in 1510, whence, however, he returned to Cologne. At Würzburg, he made the acquaintance of the greatest adept of the age, the Abbot Trithem. His next appearance is at the court of the emperor Maximilian, where his knowledge of languages and personal address had gained him a secretaryship. He fought in a campaign against the Venetians, and was knighted on the field. Tired of this honorable employment, he applied himself to the study of physic, lectured publicly at Pavia, and then returned to Germany. He was invited by Henry VIII. and Francis I., and visited both France and England. He was an ardent student of alchemy and the occult sciences, in reference to which he insisted that the writings of adepts were not to be read for a literal, but for a mystical meaning. His work *De incer-*

itudine et vanitate scientiarum (Paris, 1581), is a highly successful satire on the state of knowledge at the period in which he lived.

AGRIPPA, MARCUS VIPSANIUS, a famous Roman statesman, general, and naval commander, in the reign of Augustus Cæsar, born B. C. 63, died B. C. 12. To him Augustus was chiefly indebted for the victory of Actium. He married Marcella, the niece of the emperor, from whom he was afterward divorced. It was at one time expected that Augustus would appoint Agrippa his successor. He was only inferior to Julius Cæsar as a general, and one of the most upright of Roman governors.

AGRIPPINA. I. The wife of the emperor Tiberius, who unwillingly separated from her, when compelled to espouse Julia, the widow of Marcus Agrippa. She afterward married Asinius Gallus, whom Tiberius, still cherishing his former love for Agrippina, imprisoned during the remainder of his life. II. The daughter of Marcus Agrippa and Julia, the only child of Augustus, died of starvation in the island of Pandataria, to which she had been banished by Tiberius, A. D. 33. She was a woman of heroic mould, and was of great service to Germanicus, her husband, during his campaigns in Germany, where she was his constant companion. After his death in Syria, which he ascribed to the jealousy of Tiberius, she incurred the hatred of the emperor, who exiled her to the island where she died. III. Daughter of the preceding, born A. D. 14, died in the year 60. She was notorious for her wickedness and profligacy. By her arts she induced her husband, the emperor Claudius, to adopt her son Nero, and soon after poisoned him. She was assassinated by the order of Nero, who had become estranged from her.

AGTELEK, CAVERN OF, in Hungary, near the village of the same name, on the high road from Ofen to Kaschau. The magnificent stalactites take the shape of large churches, altars, images, &c. The most beautiful part of the cavern is the "garden" covered with an innumerable collection of flowers of every hue and size. The whole was explored in 1785 by some gentlemen deputed from the royal society of London.

AGUA, VOLCAN DE, is a lofty mountain in the state of Guatemala, Central America, to the S. of old Guatemala. In form it is a graceful cone, its base extending over nearly all the western part of the valley of Guatemala. The traveller, Stephens, estimates its altitude at 14,450 feet above the level of the sea. Cultivated fields surround the base, and a belt of forest and verdure extends to the summit. The crater-like hollow on the top measures 140 by 120 yards. Its title is derived from the fact that occasionally torrents of cold water flow out of its northern side. The volcanic mountain of Pacaya lies to the S. E., and that of Guatemala to the W.

AGUADILLA, a seaport on the N. W. coast of the island of Porto Rico, 65 miles W. of San

Juan. It has a population of over 2,000. The harbor affords good anchorage.

AGUADO, ALEXANDRE MARIE, a Parisian banker, born at Seville, 1784, died April, 1842. He was of the Hebrew religion. He was one of the great financiers of Europe, and was deeply engaged in Spanish loans, the scrip of which was nicknamed *Aguados*. His early connection with Spain, and his relations with the Spanish minister, Ballasteros, gave him great facilities, and in 1828 he took a loan of 50,000,000 francs, at 50 per cent. discount, and 5 per cent. commission. In 1830 and 1831 he again negotiated similar transactions. In early life he had been a liberal, and held a commission in the French army in Spain; he afterwards fought for Napoleon, up to the battle of Leipzig, when he quitted the army and addressed himself to trading pursuits, to which opportunities occurring, he soon added the profession of a banker. He was created a Spanish marquis by Ferdinand VII., and received from Otho of Greece the order of the Redeemer. He died worth \$12,000,000. He had a gallery of very fine pictures, which were engraved and published as the *Galerie Aguado* (Paris, 1837).

AGUAS CALIENTES, a Mexican town, capital of the recently organized state of the same name, is situated 270 miles N. W. of the city of Mexico, in lat. 22° N. long. 101° 45' W. It is built upon a plain, at an elevation of 6,000 feet above the sea, and lying at the junction of the great road from Zacatecas to Sonora and Durango, with that from San Luis Potosi to Guadalajara, is prosperous and much frequented. It is surrounded by rich gardens, abounding in olives, figs, vines, and pears, and contains beside numerous churches, three convents and a hospital. Two warm mineral springs in the neighborhood give the town its name. Population of the town 20,000, of the state, 81,727.

AGUE, belongs to the class of febrile diseases, of which there are 3 kinds, termed intermittent, remittent, and continued fevers. Such fevers as are attended with a cessation of the febrile symptoms, for an observable space of time, belong to the first kind, and are termed intermittent fevers or ague. In the second kind, the febrile symptoms do not altogether disappear, but diminish for a time in violence; they do not altogether cease or intermit, but they abate in fury, or remit at times, for a longer or a shorter period, and are hence called remittent fevers; when the febrile symptoms are incessant and without any marked diminution of violence, they belong to the third kind, and are termed continued fevers. An ague is a fever consisting of a succession of paroxysms, between each of which there is an intermission more or less complete. A paroxysm consists of 3 stages: 1, a cold chill with or without shivering; 2, the sensation of cold gives place to that of heat, and the whole surface of the body becomes hot and dry; 3, this lasts until perspiration breaks out on the forehead and gradually extends to the whole skin. These

constitute the 3 successive states of a paroxysm: the cold, the hot, and the sweating stage. The following symptoms usually usher in the disease: the patient is affected first with a loss of bodily and mental vigor, indicated by dullness or confusion of mind, languor, and inaptitude or disinclination for business or pleasure; the skin feels as if it were drawn tight over the body, and a sensation of chilliness comes on gradually, first down the back, and then increases until the limbs are affected with a tremor, amounting sometimes to a tremble or a shivering fit, the pulse becomes weaker and more frequent; the appetite fails, and there is sometimes a feeling of nausea and sickness; the secretions are diminished, and a sense of thirst becomes more urgent as the cold stage advances. The sensation of cold now gives place to that of heat, the pallid face becomes flushed and red; the eyes which had been dull and heavy, are now more glistening and bright than in the natural state; the shrunken features become full and turgid; the pulse more regular, full, and strong; the respiration fuller and more free; nausea and vomiting less urgent; headache becomes more severe, if it exists already, and if not, it is sure to come on, with an increase of sensibility and confusion of mind. These symptoms gradually pass away, and a moisture breaks out on the forehead, extending by degrees over the whole body; and, as the perspiration flows, the heat abates; the pulse becomes more soft and slow; the respiration more free; thirst diminishes; nausea and vomiting cease; the secretions and excretions are restored, and the patient left comparatively free from pain, feels only languid and exhausted. After the paroxysm has ceased for a certain length of time, the same succession of phenomena occurs, following the same course as before; and this alternation of paroxysms and intermissions is repeated many times. Different names are given to the different varieties of this fever, according to the length of the interval between each paroxysm. When one paroxysm succeeds another within a period of 24 hours, the ague is termed a "quotidian;" within 48 hours, a "tertian;" after 72 hours, a "quartan;" after 96 hours, a "quintan." Those of longer periods of intermission are termed "erratic." The most common form is the "tertian;" the next most common, the "quartan;" the next the "quotidian;" the least frequent is the "quintan." Agues are also distinguished by the seasons of the year at which they are most prevalent—the vernal and autumnal—the vernal beginning in February and the autumnal in August. The vernal are generally mild and easily cured, while the autumnal are often most severe and obstinate. There is also a form of ague termed complicated, in which 2 intermittents attack the patient at the same time. The most frequent complication is that where 2 tertians or 2 quartans attack simultaneously. In a double tertian, the paroxysm occurs each day. These are distinguished from the quotidian by a mani-

fest difference in the symptoms each day, and a perfect similitude on each alternate day. There is also a double tertian with 2 paroxysms on one day, and only one the following day; and a triple tertian with 3 paroxysms on each alternate day and one in the interval. The double quartan also varies. It may occur with 2 paroxysms on the first day, none on the second or third, 2 again on the fourth day; or with a paroxysm on the first day, another on the second, and none on the third. The nature of the disease is always the same, whatever be the form; but this is of importance in denoting the tendency and the severity of the disease; as quartans are usually more obstinate than tertians, and quotidianas are apt to become continued fevers.—Quartans are more common in autumn; tertians in spring. Whatever the duration of the intermission, the paroxysm differs in almost every different case; and the shorter the intermission the longer the duration of the paroxysm. An extension of the intermission therefore is usually a sign of the decline of the disease; while a prolongation of the paroxysm and a shortening of the intervals between, denotes exacerbation and a tendency to change from the intermittent form to that of a continued fever. The character of spring intermittent fevers is generally manifest at once; but autumnal intermittents, especially if they come on early in the season, in July for instance, are not so easily distinguished from continued fevers, of which they assume the character for a short time; about the end of autumn, however, they appear as intermittents, either tertians or quartans, which they really were, at first, in a remittent form. It is prudent, therefore, in a country where ague prevails, not to mistake this form for a true continued fever. There is nothing more inexplicable, or less understood in the nature of the disease, than this fact of periodicity. Some have ascribed it to the daily habits of activity and rest in the organism, but this does not account for intermittents of the tertian type, the paroxysms of which occur not every day, but every other day. It is now admitted that the effluvia arising from the decomposition of vegetable matter in the midst of stagnant water or marshy ground, is the cause of ague. What the chemical nature of the effluvia may be, is not well known. Some say carbonic acid, mainly; others, nitrogen; others again, hydro-carburetted gas, or hydro-sulphuretted gas, or a peculiar compound of nitrogen and oxygen called septon. Wherever the ground is moist and contains decaying vegetable matter, this poison may be generated. Woods produce it almost as much as marshes, because in some localities the ground remains always damp, and contains decaying vegetable matter. This is the case in the woody districts of Hampshire, Kent, and Sussex in England. The jungle of India consists of a low dense growth of brushwood, and thickets of reeds and grass, in which there is a vast amount of wet and decaying vegetation, acted upon by the intense heat of the atmos-

phere, and producing fever poison in the highest degree of concentration. Rice grounds are also productive of fever; and Dr. Rush states, that in Pennsylvania, epidemics always follow the clearing and cultivation of forest lands. It has been observed that the district of Bresse, near Lyons, in France, was healthy when full of woods, but has become nearly depopulated since they were cut down. Here it is supposed that the shade of the trees kept the rays of the sun from the wet ground, and thus retarded the decay of vegetable matter. Meadow land imperfectly drained contains an abundance of decaying vegetable matter, and when this is exposed to the heat of the sun, ague becomes rife in the immediate vicinity. The poison floating in the air may be carried to a distance by the wind. In warm climates, the marsh poison sometimes proves fatal to a ship's crew several miles from land. It is brought with the land wind, and may be carried as far as the smell of the land is perceptible. This is well known to sailors, for cases are recorded of careless seamen who remained on deck, in latitudes where fevers are known to be fatal, being invariably seized with the disease, while those who were more prudent and went below decks, as soon as the smell of the land was brought by the wind from shore miles away, were not at all affected. Moist air also conveys it better than dry. Persons who live in the basement story of a damp and undrained house, and especially those who sleep there, are often attacked with fever, while those who occupy the upper stories of the same house are not affected by disease. The treatment of ague is now deemed simple. The first thing to be done is to remove the patient from the neighborhood in which the poison is generated, to a locality where the air is pure and free from the effluvia of decaying vegetable matter. Without this change of residence, the cure is doubtful, because the poison is inhaled anew with every breath of air. Where this is inconvenient or impracticable, let the patient occupy the upper portion of the dwelling. Ipecacuanha, peruvian bark, and arsenic, are the most efficient remedies. The approach of the paroxysm should be carefully watched. As soon as the first symptoms of the chill appear, an emetic should be given, consisting of 10 or 15 grains of ipecacuanha, and one grain of tartar emetic; and when vomiting begins, warm water, or a warm infusion of camomile, may be given abundantly to promote the sickness. When the vomiting is over, 80 drops of laudanum in one or two ounces of camphor julep may be taken; this will generally prevent the cold chill, render the hot fit easy, induce the sweating stage almost at once, and thus abridge the paroxysm. During the intermission, bark should be freely given in wine; or sulphate of quinine in 2 grain doses, every hour, or every 2 hours, according to the severity of the attack. Where the bowels are much constipated an infusion of senna with camomile may be advisable as an aperient. It is said that where

decaying vegetable matter produces ague in particular localities, certain kinds of plants may be rendered useful in absorbing the effluvia as fast as it is produced, and thus prevent the poison from attacking the inhabitants. The sun-flower is said to be one of the most active absorbers of ague poison; the hop plant is another. In 1855 the experiment was tried at Washington, by Lieut. Maury, on the grounds near the Potomac, where the observatory stands, and which were known to be exceedingly unhealthy at some seasons of the year, from the effects of decaying vegetable matter. The fever was observed to make its appearance during the 5 months of the year in which the decay of vegetable matter was most active, in the marshy grounds around the observatory, or within a short distance of the place. In the fall of the year 1855, Lieut. Maury caused a strip of land 45 feet wide, to be dug about 2 feet deep, around the observatory, at a distance of about 200 yards from the river, this land was properly prepared for seed, and in the spring of 1856, was sown with the seeds of the sun-flower plant, which flourished well; and in the month of August following, when ague fever might have been expected to appear as usual no sickness occurred; and to the surprise of every body the locality remained quite healthy during the whole season. This is a remarkable experiment, and worthy of universal attention. Other experiments will probably be made in this direction, and a method found of absorbing, on a larger scale, the poisonous effluvia of decaying vegetable matter in marshy places, so as to prevent, to some extent at least, the ravages of ague, cholera, and yellow fever, in countries where these dire diseases are most prevalent.

AGUEDA, is a river in Spain, tributary to the Douro, which forms on the N. E. of Beissæ, a part of the frontier of Portugal.

AGUESSEAU, HENRI FRANÇOIS D', a French jurist, born at Limoges 1668, died Feb. 9, 1751. He was an earnest law reformer, and first endeavored to reduce the incongruous and contradictory laws of France to uniformity. He was the son of the intendant of the Limousin, and received from his father an excellent education. He was a man of inflexible integrity, and when procureur-général, he opposed the registration of the papal bull, *Unigenitus*, on the ground that it encroached on the free action of the Gallican church. In 1717 he was made chancellor by the regent Orleans, and is remarkable in a period of universal infatuation for his perception of the ruinous consequences of Law's schemes for making the nation suddenly rich. In 1722, the infamous Cardinal Dubois being appointed president of the council, d'Aguesseau retired, to be reappointed in 1727. He died at the age of 82, a pension of 100,000 francs having been granted to him. He is considered by Voltaire one of the most learned judges that France ever possessed. Beside his thorough knowledge of law he had an extensive acquaintance with literature, and was versed in most of the European languages.

AGUILAR, GASPAS DE, a Spanish author, who lived at Valencia toward the end of the 16th and the commencement of the 17th century. He wrote 12 comedies and a poem.

AGUILAR, GRACE, an English authoress of Hebrew race and creed, born in Hackney near London, June 2, 1816, died at Frankfort in Germany, Sept. 16, 1847. She was descended from a family of Hebrew merchants in Spain, who fled from that country on account of religious persecution, and found a refuge in England. She was instructed wholly by her father and mother. At 14 she commenced the study of history, beginning with Josephus. At a very early age she wrote a pleasing religious fiction, "The Martyr; or, the Vale of Cedars." Her other works are "The Spirit of Judaism;" "Israel Defended," translated from the French; "Magic Wreath," a small volume of poems; the "Days of Bruce," a story from Scottish history; "Jewish Faith;" "Women of Israel;" "Home Scenes and Heart Studies;" "Home Influence;" "Josephine; or, the Edict and Escape;" the "Mother's Recompense;" and "Woman's Friendship." In 1835, her constitution received a severe shock from an attack of measles, which left her in a state of debility, from which she never fully recovered. She visited the continent of Europe in June, 1847, where she died. Her remains rest in the cemetery of the Jews at Frankfort.

AGUILAR DE LA FRONTERA, a Spanish town on the Cabra, 22 miles S.S.E. of Cordova, capital of the judicial district. It has a trade in corn and wine, and is remarkable for its white houses and cleanly streets. There are within it 3 handsome public squares, a new town hall, several chapels, a hospital, a Moorish castle, now dismantled, and several schools. Population 11,886.

AGUILAS, a Spanish town on the Mediterranean, in the province of Murcia, 87 miles from Cartagena. It has a small but safe port, and its principal commerce is in exporting grain. It is well and regularly built, and contains a population of 4,832, including 100 men stationed in the fort.

AGUILLON, FRANÇOIS, a Jesuit priest, and an eminent mathematician, born at Brussels, and died in 1617. He was the rector of the Jesuit college at Antwerp, and wrote a book on optics. He introduced the study of mathematics among the Jesuits of Holland.

AGUIRRE, I. JOSE SAENZ DE, a learned Spanish Benedictine, born at Logrona, March 24, 1680, and died at Rome, Aug. 19, 1699. He was secretary of the supreme council of the Spanish inquisition, and interpreter of the Scriptures in the university of Salamanca, and finally a cardinal. He published a work on philosophy, and a commentary on Aristotle's ethics. II. LOPE DE, a Spaniard of the 16th century, eminent for his crimes. He left Spain for Peru, and crowned a long list of atrocities by the unmitigated wickedness which he manifested during the expedition of Orsua in quest of the imaginary El Dorado, a history of which has

been written by Southey. He prompted Orsua to assert supreme power, and then killed him to usurp his place, and from this time customarily murdered men out of caprice and pleasure, as if murder were one of the fine arts. He died by violence in Venezuela.

AGUJARI, LUOREZZA, a singer of Parma who received \$500 a night for two songs. She died in 1788.

AGULHAS, a cape and bank on the southernmost point of Africa, 100 miles S. S. E. of the Cape of Good Hope, in lat. 34° 51' S. long. 19° 56' 30' W. Its extreme height is 455 feet above the sea. A light-house was erected in 1849 upon the cape, at an elevation of 55 feet above high water.

AGUSTINA, the maid of Saragossa, died at Cueta, Spain, in June, 1857, at a very advanced age. She was an itinerant seller of cool drinks in Saragossa in her youth, and during the siege of that place by the French in 1809, distinguished herself greatly by her heroic participation in the severest encounters with the enemy. She was called *la artillera*, from having snatched the match from the hands of a dying artillery man, and discharged the piece at the invaders. For her services during this protracted siege of 62 days, she was made a sub-lieutenant in the Spanish army, and received several decorations. Byron has celebrated her in several verses of "Childe Harold."

AGYNIANI, or AGYNI (Gr. *a* privative, *γυν*, woman), so called from their rejection of marriage. They flourished about the close of the 7th century, and are only one of the many phases of the Gnostic idea that the creator of the material world was an evil being, and that, therefore, the true Christian life consists in a renunciation and mortification of all the physical appetites and passions. They therefore abstained from meats and marriage. In doctrine they were Gnostics, and, perhaps, would agree mainly with that distinctive form of Gnosticism developed by Marcion. Abstinence from matrimony is not distinctive of the Agyniani, but has been constantly reappearing through at least 17 centuries of Christian history, and of course dates as far back as Dualism, of which it has ever been a logical consequent.

AHAB, son of Omri, and seventh king of Israel, succeeded his father. He married Jezebel, the daughter of Ethbaal, king of the Sidonians. Through her influence, the intercourse between Phœnicia and Israel, which had long been only commercial, now became social and religious. She introduced the worship of Baal and Ashtar into the Jewish cultus. The golden calves at Dan and Bethel had been guardedly worshipped for several years. But idolatry, under Ahab, became a predominant element of the Jewish religious life. For his idolatrous practices Ahab was reproved by Elijah, who denounced a three years' famine. As a result of Ahab's obstinacy, Elijah proposed the famous trial of Carmel. When Benhadad, king of Syria, be-

sieged his capital, Ahab warned him that he should not be so insolent, and mustering his forces went out and utterly defeated him. Benhadad renewed the attempt a year after with the same results, yet more disastrous. Ahab finally came to his end by an arrow wound received while fighting in disguise in the battle of Ramoth-Gilead, contrary to the command of God.

AHALA, C. SERVILIUS, master of the horse to the dictator Cincinnatus, B. C. 439. He slew Sp. Mælius in the forum for refusing to be tried before the dictator on a charge of treason, and was obliged to flee the country to escape punishment.

AHANTA, a portion of the kingdom of Ashantee, on the Gold Coast, in Africa. It lies between 8° and 2° 10' W. long. Its breadth from north to south is trifling. On the west it is bounded by a river called Ancoba by the Portuguese, and Seenna by the natives. It is subdivided into three districts. Its most important town is Boosoa. There are several Dutch forts scattered along the coast.

AHASUERUS, the name of the Persian king whose actions are described in the book of Esther. He is probably identical with the Artaxerxes Longimanus of the Greek historians, who began to reign B. C. 456.—*AHASUERUS*, mentioned in Ezra iv. 6, is understood by Josephus and the principal modern commentators to be another name for Cambyses, the successor of Cyrus upon the Persian throne, B. C. 529.

AHAUS, a circle of the government of Munster, and province of Westphalia, belonging to the western portion of Prussia. The circle contains 4 cities, 8 market towns, and 11 villages. The soil is tolerably productive, but the most important business is the raising of cattle and sheep, especially the latter. The spinning and weaving of linen is also somewhat attended to. In the times of the hay and corn harvest in the adjoining country of Holland, a great many of the laborers go to that country, where they obtain higher wages than at home. The principal city of the circle bears the same name, and contains the castle of the prince of Salm-Kyrburg, who resides there. Area of the circle, 264 square miles. Population 40,069.

AHAZ, the son of Jotham, and the 12th king of Judah. He ascended the throne in the 20th year of his age, and in a troublous time for the sceptre of Judah. For the kings of Syria and Israel, Rezin and Pekah, had conspired against Judah, and in the first year of his reign made one attempt to take Jerusalem. Unsuccessful, however, in this, they divided their forces, and overran the kingdom, plundering and killing as they went. The next year they renewed the attempt, and were favored by the unsettled state of affairs in the kingdom of Ahaz, produced by the irruptions of the Edomites and the Philistines. In this conjuncture, when Ahaz was troubled on every side, Isaiah announces to him that the plans of Pekah and Rezin shall

not prosper, and offers him a sign from the Lord, as an assurance of the truth of the assertion. Then was made that remarkable prophecy so frequently interpreted as having reference to Jesus Christ. By the timely aid of the king of Assyria, whom Ahaz hired by stripping the gold and silver from the royal palace and the temple, he succeeded in crushing his foes, and so maintaining his authority. But he introduced idolatrous worship into the temple, and sacrificed to the gods of Syria, that they might help him, instead of his foes. He was contemporary with Isaiah, Hosea, and Micah. He was refused burial in the sepulchres of his fathers, because of his iniquities. He caused his son to pass through the fire to Moloch, and set up an altar of a heathen model in the temple.

AHAZIAH. I. Son and successor of Ahab, king of Israel. He reigned B. C. 897-895. The most signal event of his reign was the revolt of the Moabites. Ahaziah, like his father Ahab, was controlled by the ambitious Jezebel, and walked in the ways of his father. He fell from a roof of his palace, and sent to the oracle of Baalzebub at Ekron, to inquire if he should recover. The prophet Elijah met the messengers on the way, and sent them back to say to the king that he should never rise from his bed. II. Grandson of Ahab and Jezebel, known as Jehoahaz, and a king of Judah. He reigned but one year, and during that time he was under the entire control of his mother, Athaliah. He was slain by Jehu, who regarded Ahaziah as coming by blood into the scope of his commission to destroy the house of Ahab.

AHEAD. To be ahead is to be in advance; to be ahead of another is to be in advance of another. To go ahead, is to go straight-forward in your course. The phrase, "Go ahead," used as a signal to coachmen, stage-drivers, and engine-drivers, that they may proceed, is an Americanism equivalent to the Englishman's "All right."

AHIMELECH, the son of Ahitab. He was high-priest and dwelt at Nob. David, fleeing from Saul, came to Ahimelech, and, by misrepresentation of his business, induced Ahimelech to supply his wants with the shew-bread which was kept in the tabernacle. For this, Saul commanded Ahimelech to be slain, with all the priests of Nob, on a charge of conspiracy. When his guards would not commit so great an enormity, he found a willing instrument of his unreasonable vengeance in the person of Doeg, who had originally informed against Ahimelech. Saul then ordered an indiscriminate slaughter of the inhabitants of Nob.

AHITOPHEL, one of the confederates of Absalom in his rebellion against his father David. He was famed throughout the Jewish nation for his sagacity. His advice being rejected by Absalom, he committed suicide by hanging himself.

AHLEFELD, CHARLOTTE SOPHIE LOUISE WILHELMINE, German novelist, born 1781, married 1798. Her maiden name was Seebach.

She read much when a child, and at the age of 10 was already a writer. Some of her infantile productions were shown to Göthe, by whose praise she was encouraged to proceed.

AHLWARDT, CHRISTIAN WILHELM, German philologist, born 1760, died 1830. He was rector of the gymnasium in Oldenburg, and rector and professor of ancient literature at Greifswalde. He translated Callimachus, Catullus, Ossian, and volumes of Shakspeare, Ariosto, and Camoens.

AHMED SHAH, founder of the Afghan monarchy, born 1724, died 1772. Ahmed was son of Sammaun Khan, the ameer of the great tribe of the Abdallis and of the family of the Suddosees. At his father's death, he and his brother, Zulfuqar, fell into the power of Hoessein Shah, the head of the tribe of Ghiljies, who was then master of Candahar. At this period Afghanistan was subject to Persia. On the invasion of India by Nadir Shah, the two young princes were rescued from the hands of Hoessein and sent into Persia. Ahmed's brother died in captivity, but he himself was taken into the service of the usurper, and promoted to the command of a body of horse. When Nadir was assassinated in 1747, Ahmed and his tribe boldly attacked the conspirators with the design of avenging Nadir Shah's death. But finding the Persian army too powerful, he determined on a retreat into the fastnesses of his native country, which he successfully accomplished. He changed the title of his tribe from Abdalli to Dooranee, which they still retain, and supported by them he raised the standard of independence, proclaimed himself shah, and was soon joined by the ameers and their several tribes. His first act was to seize a convoy of treasure, the spoils of war coming from India to Persia, and to possess himself of the famed Koh-i-noor diamond (now in possession of the British crown), which had fallen into the hands of Nadir Shah, and whose value was unknown. Aware, like other usurpers, that his power depended on finding occupation for his turbulent subjects, he led them at once to conquest, and rapidly subdued the provinces surrounding him and part of the kingdom of Persia. He then directed his conquering arms to India, and subjected that unhappy country to another invasion, before it had recovered from the atrocities inflicted by the rapacious followers of Nadir Shah. In 1759 he overran the Punjab and Cashmere, and penetrated as far as Delhi, the capital of the Mongol emperor Alamghir, whither the emperor, jealous of his vizier's excessive power, earnestly summoned him. The crafty vizier, Ghazy-ed-deen, propitiated Ahmed, and professing entire subservience to his views, induced the Afghan monarch to leave him in possession of his ill-gotten power as a check upon his sovereign. Ahmed entered Delhi in triumph, and his followers, throwing off restraint, subjected the city to the horrors of a sack. Before retiring to his own territories, he added a Mongol princess to the number of

his wives, and his son, Timour Shah, married another, and was invested with the government of the Punjab and of Sirhind. In retiring from Delhi, he left a lieutenant, Najibuddollah, to hold both the vizier and the Mongol in check. No sooner was the restraint of his presence removed than the minister rose on the Afghan commander, drove him out of Delhi, and assassinated the emperor, placing a prince of the blood royal on the throne. The Mahratta chieftains, now perceiving the disorganization of the Mongol empire, saw their opportunity for expelling the Mohammedan rulers altogether and establishing Hindoo supremacy. It was a struggle of races. Ahmed Shah brought a powerful army into the field. The Mahrattas took up an intrenched position at Paniput, and Ahmed, by his superior skill, cut off their supplies and forced them to an engagement Jan. 6, 1761, in which the Mahratta forces sustained a terrible defeat, from which they could not rally. The Shah, however, saw the impossibility of maintaining the Mongol empire, and left it to its fate. The Sikh chieftains in the Punjab revolted against him, and he crossed the Indus for the 6th time in 1762, and coerced them to a temporary obedience. The remaining years of his life were harassed by the insurgent Sikhs and by troubles in his government, to which was added the pains of cancer on the face, of which he died at the age of 49.

AHMEDABAD, a city and district of British India, province of Guzerat, presidency of Bombay. The city is in latitude $23^{\circ} 1' N$. long. $72^{\circ} 42' E$. It is situated on the banks of the Subhermutte river; population about 100,000. The district was originally under Mohammedan rule, but fell under the power of the Mahrattas, by whose exactions and oppressions the commerce of the place was destroyed. It fell under the sway of the British in 1818, and immediately a new scale of taxation was established, under the influence of which the resources of the country have been developed anew, and its languishing trade revived.

AHMEDNUGGUR, a city and fortress of British India, the capital of the province of Aurungabad, in the presidency of Bombay; population about 20,000. In the general disruption of the Mongol empire, after the death of Aurungzebe, the Mahrattas made themselves masters of the district, and when the Marquis of Wellesley vanquished the chieftain, Scindia, the fortress was taken. After the war it was restored to the Peshawar, but has since been resumed by the British. The fortress, which is remarkably strong, is about a mile from the city, which is itself surrounded with stone walls. Ahmednuggur contains some good streets and a handsome market-place. The palace of the ancient sultans is a spacious fortified structure.

AHMEDPOOR, the name of several towns in Hindostan, the chief of which, Ahmedpoor Barra is situated in Bhawlpoor. It is meanly built, has a mosque, a fort, and manufactures

matchlocks, gunpowder, cotton, silks, and scarfs. Population about 20,000.

AHMOOD, a city of Hindostan, in the presidency of Bombay, province of Guzerat, and district of Baroach. Population (1832) 13,144.

AHR, a river in Prussia, which flows for a distance of 30 miles, from the Eiffelberg mountains into the Rhine, near Sinzig.

AHRENS, MARTIN FRIEDRICH, an antiquary and native of Holstein. He died in 1824. Forty years of his life were devoted to travelling on foot through Norway, Sweden, Denmark, France, Spain, Italy, and other parts of Europe, in search of Scandinavian antiquities and Runic monuments.

AHRIMAN, the name of the evil principle in the ancient Persian religion. See ORMUZD.

AHUITZOL, an emperor of the Aztecs, who lived towards the close of the 15th century. He is said to have made large additions to his empire, and to have spent large sums in building those canals and edifices which so astonished the Spaniards on their arrival in Mexico. In 1486, so runs the tradition, he inaugurated a temple by the slaughter of 72,844 prisoners—a ceremony which prolonged the inauguration to a term of 43 days.

AHULL, a nautical term. A ship lies ahull, when, with all her sails furled, she lies nearly with her side to the wind and sea, and her head inclined somewhat to the direction of the wind.

AHUMADA, DON PEDRO GIRON, DUQUE DE, marques de las Amarillas, a Spanish statesman. A scion of the noble stock from which the duke de Osuna derives his origin. He was an officer in the royal guards, and served in the war of independence. On the return of Ferdinand VII., he advocated a liberal policy and thereby gave offence at court. After the revolution of 1820, he became minister of war, but was soon dismissed. His uncle, the bishop of Tarragona, made vain efforts to reinstate him, but the king refused, alleging, that "if he had a Giron he would be the king, and the king only minister." He made his peace afterward, and the king appointed him, by will, one of the council of regency during the minority of his daughter Isabella. He opposed the measures of Martinez de la Rosa against the insurgent provinces and the admission of the grandees into the chamber, though he was afterward favorable to an hereditary upper house. He was president of the chamber, and was created duke de Ahumada by the regent Christina. He again became minister of war in 1835, and in this position he introduced various amendments in the military department, in order to conciliate the Basques; but he became unpopular on account of his son's appointment to high offices over the heads of older and deserving men. He sent in his resignation and went into opposition. The animosity of his political opponents obliged him to leave Spain in 1837, and take refuge in France.

AHWAZ, a small town on the river Karoon

in Persia, about 100 miles from Bassorah. It is a very insignificant place, containing about 1,600 inhabitants, but it is in the immediate neighborhood of a vast collection of ruins, the remains of a city of the same name, ascribed to the period of the earliest Mohammedan caliphs. It must have been a city of considerable magnitude, and the ruins extend for 12 miles along the bank of the river; near it is a *bund* or strong dam built across the bed of the river to irrigate the surrounding country.

AI, an ancient city of Canaan, in the territory of Benjamin, about 12 miles north of Jerusalem, as near as can at present be determined. If this was its situation, it must have been an important military station, for it commanded the heights of Benjamin by "the pass of Michmah," the eastern of the two great routes through and along which so many of the military operations recorded in Scripture were transacted. It seems to have been the head-quarters of the inhabitants of the land when Joshua went up against them. It is first mentioned in Scripture as the place where Abraham and Lot pitched their tents when journeying from Haran, and it was from this commanding position that, in the proposed division, Lot chose the plains of Jordan for his portion of the land, and Abraham descended to the maritime valley on the west. Ai was captured and destroyed by Joshua, and became a heap of stones, but was rebuilt so as to be a place of some note in the time of Jeremiah.

A'IBEK A'ZAD-ED-DEEN, first Mameluke sultan of Egypt, born about 1200 on the shore of the Caspian sea, assassinated April 10, 1257, in Egypt. He was a Turkish slave, and entered the Mameluke corps, in which he became bey. In 1250, the Baharite Mamelukes defeated Louis, king of France, and took him prisoner. At this period the Mamelukes revolted and massacred Sultan Tooran Shah, whose queen, Shar-ed-door, they placed on the throne. She raised A'Ibek to the rank of ata bey, or commander-in-chief, and in 3 months she married him. But the soldiery, disgusted at seeing a former slave in possession of the royal power, deposed him and proclaimed Eshref, a descendant of Saladin, leaving, however, A'Ibek in possession of his military rank. The sultan of Damascus, Nazir Yussuf, now invaded Egypt, but A'Ibek defeated him, and peace was concluded, one of the stipulations of which was that A'Ibek should not league with the crusaders against Syria. A'Ibek, freed from foreign enemies, soon found a pretext for putting to death Tares-ed-deen, the chief who had opposed his elevation, and deposed Eshref, the royal infant, ascending the throne again A. D. 1254. A'Ibek having conceived the plan of marrying the daughter of the king of Mosul, excited the jealousy of his wife and benefactress, who had him assassinated.

AIHLINGER, JOSEPH KASPAR, a living German musician, born in 1775. He acquired a competent knowledge of his profession without

the aid of any master. He resided in Italy, and studied the Italian masters, but returned to Germany confirmed in his prepossession for the productions of German musicians, and took a prominent part in bringing out Gluck's *Iphigenia in Tauris*. His own compositions are remarkable for tender simplicity and for careful treatment of the male voices.

AIOHSPALT, PETER, written, also, ASSPALT, and RAICHSPALT, a German ecclesiastic, born in the 18th century. He was born in such indigence that he was obliged to pick up a subsistence by singing in the streets, but his thirst for knowledge conquered all difficulties. He studied physic and became physician to Count Henry of Luxemburg, and the emperor Rudolph I. He subsequently attracted the notice of the pope, and was appointed dean of the cathedral of Prague, and afterwards, under the title of Peter II., became bishop of Basel and archbishop of Mentz, in which office his talents shone so conspicuously that he was mainly instrumental to the election of Henry of Luxemburg as emperor, and had the satisfaction of crowning his old patron at Prague in 1811. After the death of Henry, he procured the election of Louis of Bavaria. His life was distinguished for morality and abstemiousness. He died June, 1880.

AIDE-DE-CAMP, a military officer, attendant on a general, whose duty it is to convey his orders to all parts of the field. The appointment of aide-de-camp carries with it other nominal rank. See ADJUTANT.

AIDE-TOI, LE CIEL T'AIDERA. A society of this name was formed by a number of French constitutionalists, called particularly doctrinaires, in 1824, for the purpose of constitutional opposition to the French chamber of deputies, which was strongly royalist. In 1828, Guizot was elevated to the presidency of the association. At this time it embraced among its members De Remusat, Duchatel, Duvergier de Hauranne, Thiers, and Mignet, and the republicans Armand Carrel, Godfrey Cavaignac, and Bastide. First the "Globe," and then the "National" were their organs. By disseminating addresses and political information in all shapes among the people, it created that power of public opinion which enabled the opposition deputies to defeat the crown and its ministers. After the revolution of July, its leading members took a part in the administration of the government, and its efforts were directed toward promoting a revolution in Belgium and Spain, on the French pattern. Garnier Pages and Arago, two republicans, became prominent in the latter days of the club. It was finally dissolved of its own accord in 1832. It never assumed a secret character.

AIDIN, or GUZEL-HISSAR, a district of Anatolia, whose chiefs rebelled against the Porte on account of the oppressions of the Turkish aga in 1829. The outbreak was repressed with great difficulty by the forces of the sultan, and

not until Ibrahim Pasha took the field. Even then the principal supporters of the movement retired to the mountains, where they maintained their independence.

AIDS, a pecuniary tribute paid by feudal vassals to their lords on certain emergencies as making an eldest son a knight, or marrying a daughter, or on being oneself taken prisoner. The term was also occasionally used in reference to contributions levied on behalf of the king. These taxes were abolished by 12 Car. II.

AIGNAN, **ETIENNE**, a member of the French academy, born at Beaugency-sur-Loire in 1773, died Nov. 25, 1824. He early embraced the cause of the revolution of 1789, but opposed with equal ardor the excesses of 1793. He wrote several tragedies, translated the *Iliad* into verse, and a portion of the *Odyssey*. He succeeded Bernardin de St. Pierre in the academy, and pronounced his eulogy in 1815. He wrote a work on the state of the Protestants in France, and treatises on legal subjects. Late in life he published the *Bibliothèque étrangère d'histoire et de littérature ancienne et moderne*. Aignan took part in the preparation of the *Encyclopédie Moderne*. He was an active contributor to political and literary periodicals, a translator of several English standard works, and an editor of the complete writings of Jean Jacques Rousseau.

AIGUEBELLE, a prosperous little town of Savoy, on the left side of the river Arc, 15 miles E. of Chambéry; known as the place where the Spanish and French forces gained a victory over the troops of the king of Savoy in 1742. It is near the beginning of the road which Napoleon built over Mount Cenis.

AIGUILLE (Fr., needle), a name given to certain narrow and sharp-pointed peaks of the Alps, some of which rise to a great height. There is a mountain of this description in the S. W. part of France, on the road from Grenoble to Gap, called L'Aiguille, which rises to the height of 6,562 feet above the sea.

AIGUILLON. I. **ARMAND VIGNEROT-DUPLESSIS RICHELIEU**, duc d', minister of foreign affairs under Louis XV., born in 1720, died in 1798. During his ministry, the first partition of Poland took place. When Louis XV. heard of this act, so disastrous to the interests of France, he exclaimed, "If Ochoiseul had been here this partition would not have taken place." When the English made a descent upon the coast of Brittany, the duke threw himself into a mill, whereupon La Chalotais perpetrated that celebrated witticism, that d'Aiguillon had covered himself not with glory but with meal. On the accession of Louis XVI., he was replaced by De Vergennes, and lived thenceforth in obscurity. II. The son of the preceding, of the same name, born about the middle of the 18th century, and died in 1800. He was one of the minority of the nobility who espoused the constitutional cause in the constituent assembly, and assisted joyfully on the memorable night when feudal privileges were abandoned. When

war was declared against Austria, in 1792, he hurried to the frontiers, and served under Luckner. After the insurrection, Aug. 10, he was obliged to leave France, and barely escaped to England. He always belonged to the constitutional party, and was invited back by the first consul in 1800. He never saw France again, as he died suddenly on the eve of embarkation.

AIGUES MORTES, a small town of France, situated in a marshy district in the department of Gard, 8 miles distant from the Mediterranean, and 21 miles S. W. of Nîmes. It has a population of 4,046, and a considerable trade in fresh and salted fish, which is shipped off by the Beaucaire and Grand Roubine canals. St. Louis founded it in 1248, and the ancient fortifications, which still remain, are fine specimens of feudal architecture.

AIGULF, a French Benedictine monk and church reformer, born 680, died 675. He was abbot of the convent of Fleury, on the Loire. His endeavors to induce a more regular habit of life among the monks, gave such offence that a conspiracy was formed against him. In 678, he was seized, deprived of his eyes and his tongue, and sent prisoner to the island of Capraria, and afterwards in Corsica, where two years later he died.

AIKEN, **WILLIAM**, sometime governor of South Carolina, born in Charleston, in that state, in 1806, graduated at the South Carolina college in Dec. 1825; embarked soon after for Europe, and travelled for several years on that continent. He returned to his native city in 1829, and in 1830 became the proprietor of Jehossee island, on the Pon-Pon river, some 80 miles south of Charleston. This island, containing nearly 4,000 acres, was admirably adapted for the rice culture. Its new proprietor at once addressed himself, with great skill and energy, to its development, devoting himself to this one labor for many years. Commencing with a cultivation of less than 800 acres, he has now in constant use nearly 2,000. He has succeeded in putting these acres into the highest possible state of fertility. He has executed large works in canalling and embankments, so as to command ample supplies of fresh water, a first necessity in the culture of rice, has erected his own rice-mills, threshing and other machines, always employing the latest improvements and the most scientific agencies in the prosecution of his labors. His negroes, 1,000 in number, are settled in neat and comfortable houses, disposed in villages beautifully grouped, and are said to exhibit a remarkable degree of comfort and contentment. In 1838, Gov. Aiken was drawn from his retirement and private pursuits, by the people of the parishes of St. Philip and St. Michael (Charleston), and sent to the state legislature, and was returned again in 1840. In 1842, he was elected senator from the same parishes without opposition. In 1844, he was made governor of the state. In 1850, he was elected representative to congress from the 2d district, which includes Charleston,

reflected without opposition in 1852 and 1854, and declined reelection in 1856. In the state assembly, and in congress, his conduct was marked always by good sense and a rare amenity of manners. He was not a debater, and was never ambitious of oratorical display. He was content with simply working at his post and on committees. He cultivated the social charities in public life, was uniformly mild of temper, gentle in bearing, unobtrusive in society, unpretending in discourse, and conciliatory to opponents. During seasons of great excitement, he contrived to preserve his temper, and to maintain pleasant relations with persons of all parties. His affinities were with the democrats. His political creed was that of the states rights republicans, of the school of Mr. Calhoun. He was supported by the democratic members in congress for the speaker's chair, and lacked but a single vote of success, and is regarded as one of those persons who, at a time of great political bitterness, might be looked to as capable of reconciling the most hostile extremes. Gov. Aikin is one of the wealthiest men of the south. He has employed his wealth judiciously, has contributed greatly to the local enterprises of that region, and is distinguished by munificent charities, bestowing large donations upon the orphan asylum of Charleston, contributing to the endowment of the Charleston college, and to other public institutions of his native city. In 1852, while at his post in Washington, the cholera appeared at Jehossee, and he at once returned to his plantation, and, carrying with him the best medical skill he could command, devoted himself personally to care and attendance upon his sick and dying, ministering at all hours to their wants and necessities, alleviating their sufferings while they lived, and attending them with the last sad offices, when they no longer needed his care. He is now in the prime of life, of vigorous health, is married, and has one daughter.

AIKIN, ARTHUR, grandson of Dr. John Aikin, tutor in divinity at the dissenters' academy of Warrington, known as a writer and scientific man, born May 19, 1773, died April 15, 1854. In 1797, he published the "Journal of a Tour through North Wales and Shropshire." He was afterward, from 1808 to 1808, editor of the "Annual Review." In connection with his brother Charles, he published, in 1807, "A Dictionary of Chemistry and Mineralogy." In 1814 appeared the first edition of his "Manual of Mineralogy." He was for many years resident secretary of the Society of Arts, and contributed to its "Transactions." He was also one of the founders of the Geological Society, and for 36 years a fellow of the Linnean Society.

AIKIN, JOHN, M. D., an English writer, born Jan. 15, 1747, died Dec. 7, 1822. He was the son of Dr. Aikin, and father of the preceding. He was educated for the medical profession, in which he had a good share of practice. The scientific and literary circle with which he was surrounded

at Warrington, developed tastes for literature, and induced him to turn his attention not only to medicine and medical works, but to subjects of more general interest. The best known of his works, in which he was assisted by his sister, Mrs. Barbauld, is "the Evenings at Home," a selection of instructive essays and anecdotes for children. This is as popular with the children of a larger growth as with those for whom it was intended, and has been translated into every European language. He practised medicine at Warrington, afterward at Yarmouth, and in London. He was literary editor of the "Monthly Magazine" for the first 10 years after its establishment in 1796, and in 1811 was editor of Doddsley's "Annual Register." The list of his works is very numerous. The principal are "Biographical Memoirs of Medicine in Great Britain from the time of Henry VIII.;" "The Calendar of the Year," afterward republished as "The Natural History of the Year;" "England Delineated;" "A Memoir of Howard the Philanthropist," with whom he had intimate friendship; "General Biography," 10 vols. 4to. In medicine, he re-wrote "Lewis's Materia Medica," together with some smaller works. He was a man of unstained character, of exemplary diligence, and an ardent friend of the principles of freedom and human progress.

AIKIN, LUCY, an English authoress, who lived in the latter part of the 18th and the beginning of the present century. She was the only daughter of Dr. John Aikin, and niece of Mrs. Barbauld. From her father she received a careful training, and like him she devoted herself to literary pursuits. She wrote "Epistles on the Character of Women," "The Life of Zuinglius the Reformer," a "History of the Court of Queen Elizabeth," a "Memoir" of her father, "The Life of Addison," and other works.

AIKMAN, WILLIAM, a Scottish painter, born 1684, died 1781. The duke of Argyle was his patron. He migrated to London and was the friend of Allen Ramsay, Thomson, Swift, Pope, Arbuthnot, and Gay. His forte lay in portrait painting.

AILANTUS (Malay, *ailanto*, tree of heaven, the name of one species in the Moluccas), or *torrieta*, of the sub-family *ailantea*, which is one of the 4 divisions of *simarubaceae* of Lindley. The species *A. glandulosa*, native of China, was introduced into England in 1751, and into North America about the beginning of this century. The tree resembles a gigantic stag's horn sumach, with very large leaves, unequally pinnate, and foot-stalks from 1 to 2 feet in length. It has many flowers on a terminal pedicel, whose anthers smell disagreeably (like animal effluvia, containing phosphorus). It grows very fast, especially in poor calcareous soil, and has spreading roots. There is a resinous juice in the bark, which hardens in a short time. The wood is hard, heavy, glossy, and susceptible of a fine polish. It is propagated by root-cuttings. It generally has only male flowers, but in warm countries produces

both male and female, and consequently fruit.—*A. excoelea* is found about Delhi and farther south. There are other species in southern Asia, and on the islands of the Indian ocean. The other plants of the same order are natives of tropical America, India, and Africa. The *ailantus* is planted in many streets of New York, Washington, and other cities of the United States.

AILLY, PIERRE D', a French theologian and prelate, born at Compiègne in 1850, died Aug. 8, 1419. He was surnamed the scourge of heretics, and the eagle of the doctors of France. He was of humble parentage, yet rose to high honors in the service of the French monarch, Charles VI.; he was made bishop of Puy and Cambray, and chancellor of the university of Paris. He presided over the council of Constance, and took a leading part in the condemnation of John Huss. In the questions that agitated the church, D'Ailly took the Gallican side. He was elevated to the dignity of cardinal by John XXIII. His works are numerous. He was a staunch believer in the influence of the planets on human affairs.

AILMER, or ÆTHELMARE, earl of Cornwall and Devonshire, in the reign of the Saxon king, Edgar, at the close of the 10th century. In 1016, when Canute the Dane invaded England, he joined the invader and contributed greatly to the temporary downfall of the Saxon dynasty. He died shortly afterward.

AILRED, or EALRED, an English historian who wrote in Latin, born 1109, died 1166. He was educated in Scotland with Henry the son of King David. Being of noble family he readily obtained the abbacy of Revesby, and afterward of Rievaulx. He was held in great esteem during his life, celebrated for the miracles wrought after his death, and admitted into the catalogue of saints. He wrote many works of a devotional and moral cast.

AILSA, an isolated rock on the western coast of Scotland, in lat. 55° 15' N. and long. 5° 7' W., of conical shape, rising above the surface of the ocean to the height of 1,189 feet. Its summit can only be gained on the east side; the others are nearly perpendicular, 2 of them resembling in structure the columns of Fingal's cave at Staffa. The rock is composed of sienite, with a basis of grayish feldspar.

AIMARAEZ, a Peruvian province, department of Ouzco. It is situated at the base of the Cordillera de Huambo, and extends 180 miles from north to south, and 96 from east to west. The province embraces 36 villages, and in 1850 contained 18,258 inhabitants.

AIMÉ-MARTIN, Louis, a French writer, born at Lyons, died 1846. He was destined to the bar, but contrary to his parents' wishes devoted himself to literary pursuits. His first successful production was a semi-scientific book, called *Lettres à Sophie sur la physique, la chimie, et l'histoire naturelle*, an agreeable mixture of prose and verse, suggested by the extraordinary success of the *Lettres à Emilie sur la mythologie*, by Demoustier.

He wrote, a little later, *La vie de Bernardin de St. Pierre*, in which the biographer seems to have happily imitated the easy, flowing, and poetical style of his subject. His commentaries on Racine and Molière are especially interesting and tasteful; and his *Examen critique des réflexions ou sentences et maximes morales de La Rochefoucauld*, affords evidence of talent as well as uprightness of heart and elevation of mind. But his most important work is a treatise entitled *Education des mères de famille*, in which he asserts that the best, or rather the only means of improving mankind, and reforming our present social organization, is to educate women in such a manner that they may be enabled to form men of character and virtue. The first part of the book is interesting, containing many practical suggestions, useful ideas, and wise opinions; but the second part is much less valuable. In it, the author launches out into purely philosophical disquisitions which do not directly concern his subject. A good translation of the *Education des mères de famille* has been published in this country.

AIMOIN, a Benedictine monk and historian, born in the province of Perigord in France, died in 1008. He wrote a history of France from the reign of Clovis II., in 654, which contains numerous errors.

AIMON, or ARMON, the four sons of, Adelare, Richard, Guiscard, and Renaud, are among the most illustrious of the warriors and heroes celebrated in the mediæval romances of chivalry. They were the sons of Aimon, variously reported to have been duke of Dordogna, prince of Ardennes, and provincial governor under Charlemagne. Froissart seriously relates their eventful career, but by the moderns their existence has been transferred from the realm of history to that of poetry. They belong to the Carolingian circle of legends, to the era of the knights of the round table, of terrific blows with lance and sword, of enchantments, fabulous kingdoms and undiscoverable monarchs, and that whole fund of marvels, from which the Italian romancers of the 15th and 16th centuries drew their materials. The eldest of these brothers, Renaud or Roland, is the hero of the Orlando Furioso of Ariosto, where their sister Bradamante also plays a part. Their adventures with those of their single horse, famed under the name of Bayard, were probably at first oral traditions in Provence, but have been repeated in various forms in the literature of every European nation. A popular German story by Tieck, is entitled "A pleasant History of the four Sons of Aimon, and of their Horse Bayard, with an Account of the heroic deeds which they accomplished against the Pagans in the time of Charlemagne."

AIMON, PAMPHILE LEOPOLD FRANÇOIS, a French musician and composer, born in Lisle in 1779, son of Esprit Aimon, who gave him an excellent musical education. He was, when only in his 17th year, appointed one of the com-

posers and directors at the theatre of Marseilles. He is a prolific composer, not remarkable for originality, so much as for independent imitation of other styles.

AIN, a department of France bordering on Switzerland and Savoy. The Rhone bounds it on the south, and the Saone on the west. It contains 2,224 square miles of territory. Population in 1852, 872,989. The eastern section of the department is traversed by lofty mountain ranges, intersected by deep valleys. The western division is low, level, and swampy, and dotted with numerous ponds, many of which are used for the breeding of fish. The river Ain flows through the centre of the province, and is used to drive the machinery of the many saw and grist mills along its banks. Immense rafts of timber are floated down its rapid current to Lyons. The products of the department are chiefly agricultural, embracing corn, wine, fruits, hay, hemp, flax, hogs, and cattle. Sheep are reared in great numbers in the eastern part of the department. It is subdivided into 5 arrondissements, 85 cantons, and 446 communes. Its capital town is Bourg. Ain forms the bishopric of Belley.

AINAD, or ARNAUD, a town and district of Arabia, in the province of Kadamant. This town is situated about 207 miles north-east of Aden, on the Wady-Hag-ger. It is said to be a large place containing 10,000 inhabitants, though little is known definitely about it.

AIN-MADI, a town and oasis of the Algerian desert, situated about 160 miles south of Algiers. It derives its name from the little stream, Ain-Madi, which rises in the neighboring mountains, and is absorbed by the sands of the desert, not far from the town. The latter is built on a rocky eminence surrounded by gardens, which are enclosed by an arid plain. It is surrounded by a wall, has two principal streets, is a station for caravans, and possesses a considerable trade. In 1838, and again in 1839, Abd-el-Kader attempted to make himself master of this town, but was unsuccessful. The city is ruled by a chief of the Tedjini race, a family which originally came from Morocco.

AINMÜLLER, MAXIMILIAN EMANUEL, born at Munich 1807, a painter on glass in Bavaria. The windows of the cathedral of Ratisbon were completed from his designs and under his direction. His "Eruption of Vesuvius by Night," is much admired. He also restored the stained glass of Westminster abbey, of St. George's, Windsor, and furnished the new windows of Cologne cathedral. He has also attained some distinction as an architectural painter in oil.

AINSWORTH, DR. HENRY, an English Nonconformist divine, the date and place of whose birth are unknown. In 1590, he attached himself to the Brownist sect, and was afterwards compelled by persecution to fly to Holland, where, in connection with a Mr. Johnson, he established a church at Amsterdam. But dissensions arose between him and Johnson which

distracted the church so much, that finally the latter retired with some of his friends to Embden. This did not, however, put an end to the disturbances, and, after some time, Ainsworth went to Ireland, whence he afterward returned, and took charge of his old congregation. He is supposed to have died at Amsterdam about the year 1689. A singular and improbable story is told with regard to the manner of his death. A Jew had lost a valuable diamond, which Ainsworth found, and restored to its owner. The latter wished to reward the finder of his jewel, but all that Ainsworth asked was, the opportunity of conferring with some of the principal Jewish rabbis on the subject of the Messianic prophecies. This the Jew promised to obtain for him, but being unable to effect it, is said to have poisoned Ainsworth, from vexation, and in order to rid himself of his importunities. Ainsworth was very fond of discussion, and it is related of him that he once had a violent dispute with another theologian, as to whether Aaron's ephod was blue or green. He was a very good Hebrew scholar, and published annotations on the Psalms and Pentateuch, together with a literal translation of the latter, a translation of Solomon's Song, and other works of a somewhat similar character. His annotations won for him a reputation in his own day, and have some value even now.

AINSWORTH, ROBERT, teacher, and author of the well-known Latin dictionary, born in Lancashire, in 1660, died in London, April 4, 1748. The dictionary was commenced in 1714, but did not appear until 1786. It was extensively used, and several editions have been issued. The work, which must have been very laborious, is a mere word book, and in no sense answers the purpose of an etymological lexicon. Mr. Ainsworth is a pleasant exception to the ordinary case of schoolmasters, for he attained a respectable competency, and was able to retire while in the vigor of life.

AINSWORTH, WILLIAM FRANÇOIS, an English traveller, geologist, and physician, born at Exeter, Nov. 9, 1807. After having studied medicine at Edinburgh, and received the degree of M. D. at the university of that city, in 1827, he went to France, where he made geological expeditions in Auvergne and the Pyrenees. He returned to Edinburgh in 1828, took charge of the "Journal of Natural and Geographical Science," and delivered lectures on geology. In 1832, when the cholera was in London, he was attached to a hospital in that city. He afterward lived some time in Ireland, and, in 1835, went out with Col. Chesney's expedition to explore the Euphrates, and the route from that river to the Mediterranean. In 1837, he returned from this expedition, having previously visited Koordistan, and in the following year was appointed, in connection with Rassam and Theodore Russell, by the geological and Bible societies of London, to trace the course of the river Kizil-Irmak, (the ancient Halys), and to visit the Wesleyan Christians of Koordis-

tan. Before his return, he also visited the country of the Nestorians, and in 1842 published an account of his "Researches in Assyria" and "Travels and Researches in Asia Minor, Mesopotamia, Chaldea, and Armenia." He is the author of "The Claims of the Christian Aborigines in the East," and "Travels in the Track of the 10,000 Greeks," published in 1844, and has also written several reports and papers.

AINSWORTH, WILLIAM HARRISON, English novelist, born Feb. 4, 1805, at Manchester. His father was an attorney, and he was intended for the law, but from an early age he exhibited a strong taste for literature. He contributed early to the "European Magazine," and Constable's "Edinburgh Magazine." On a visit to London to complete his law studies, he made the acquaintance of Ebers, the lessee of the Italian Opera, whose daughter he married in 1826. A novel, "Sir John Cheverton," which he produced in 1826, was shown to Sir Walter Scott, and the praises of that distinguished writer encouraged Ainsworth to pursue the course he had thus commenced. In 1834 his "Rookwood" appeared, in which the adventures of the noted highwayman, Dick Turpin, were the staple of the tale, interwoven with a mystery in which the nominal hero of the story was implicated. The popularity of this novel encouraged Ainsworth to bring out "Jack Sheppard." The robber school of romance, as it was styled, was decidedly popular, and, notwithstanding the denunciations of those who saw in its exciting incidents a stimulus to crime, it fixed Mr. Ainsworth's celebrity. This object having been attained, he turned to a more wholesome style of literature, and produced various romances of local interest, in which historical characters are introduced, and very freely dealt with for the working up of the narrative. Such are his "Tower of London," "Guy Fawkes," "Old St. Paul's," "Windsor Castle." He edited "Bentley's Miscellany" for some time, and afterward launched "Ainsworth's" on his own account. He became, in 1845, proprietor of Colburn's New Monthly. His works are written in a lively style, his invention is fertile, and he is inexhaustible of incident. They have been translated into several continental languages.

AINTAB, a town of Syria, at the source of the river Kowek, and about 70 miles distant from Aleppo. It has about 20,000 inhabitants, a mixed population of Turks, Greeks, and Armenian Christians. The chief trade is in hides and leather. Aintab is supposed by some classical writers to be identical with the ancient Antiochia ad Taurum.

AINUNAH, a harbor on the western coast of Arabia, said to be the only secure one in the northern portion of the Red sea. A small stream flows into it, which has great reputation among the neighboring Bedouins, on account of its water, which is pure and abundant.

AINUS, or HARRY KOORILES, a race of savages inhabiting the Koorile islands, and subject chiefly to the Japanese sway. With regard to

this people the most extravagant statements have been made by some travellers, La Perouse declaring that they are the most hairy race on the face of the globe. "Their beards," he says, "hang upon their breasts, and their arms, neck, and back, are covered with hair. I observed this as a general characteristic." Broughton also asserts that their bodies are almost universally covered with long black hair, and that he noticed the peculiarity even in children. These writers also give very conflicting statements as to their stature, complexion, and personal appearance generally. Gollownin, who records the observations which he made during his captivity, and Lieut. Habershaw, an officer of the U. S. Navy, attached to the North Pacific exploring expedition, have exposed the untruthfulness of these accounts. The latter says that their beards are usually but five or six inches in length. He saw but one case in which it reached more than half way to the waist; and as this individual more nearly answered the description of "hairy Koorile" than any of them, he was persuaded to strip, and his body was found (with the exception of a small tuft of hair on each shoulder-blade) to be no more thickly covered with hair than those of several of the sailors. They shave the front of the head, and though the hair remaining is extremely bushy, this is not its natural appearance, but due to frequent scratching. They permit it to grow until it nearly touches the shoulder. Its hue is usually black. Their shaggy beards and wild expression of countenance give them a ferocious aspect, contrasting strangely with the gentleness of their manners. Their features are more regular than those of the Chinese and Japanese, and do not show that false and treacherous expression, so noticeable in the countenances of their masters. In complexion they are of a dark brownish black. Though usually below the middle height, some of them are of lofty stature. They are of symmetrical proportions, and possess great powers of endurance. They rarely wear more than a single garment, which for summer use is made of the inner bark of a tree; it reaches to the knee, and is confined about the waist by a sash. In winter they clothe themselves with the skins of animals. The most disagreeable peculiarity of the Ainus is their personal uncleanness. Their bodies swarm with vermin, and the filth adhering to them generates a variety of cutaneous affections, which they seem to make no attempt to heal. On the other hand, in their dealings with each other and with strangers, they exhibit traits of character worthy of imitation by nations calling themselves civilized; their generosity, mildness, and modesty, attract the attention of the most unobserving. The Ainus mode of salutation is singular. "They bring the tips of the fingers up to the eyes, cast the latter upon the ground, and in a low voice, indulge in a lengthy harangue, stroking the beard meanwhile from the eyes downward." At the close of their re-

marks they look up at the person addressed, and continue gazing until they catch his eye. In the same way they return thanks for any gift. Golownin describes the natives of Yeaso as superior in strength, beauty, and activity, to those of the other Koorile isles, and attributes it partly to the fact that they trade with the Japanese, thereby obtaining better food. The inhabitants of the remaining islands live upon wild fowl, roots, and fish, and being very indolent, often go for days without eating, when their supplies of food are exhausted, from reluctance to exert themselves to procure more. In winter, the Ainus live in huts of earth, and in summer in straw huts. They sit either upon the ground or on Japanese mats. Some have gardens in the Japanese fashion: others engage in the chase: they kill with their spears and arrows, bears, deer, and hare, catch birds, and also eat dogs. Polygamy is practised among them. They have no writing; every thing is handed down from generation to generation by oral tradition. They worship the sun and moon, but have no places set apart for religious services, and no priests. It is mentioned as a striking proof of their amiability of disposition, that they have no words of abuse in their language. (See "My Last Cruise," by A. W. Habbesham, U. S. N. 1857.)

AIOU, a cluster of 16 islands in the Malay Archipelago, about 100 miles N. by W. from New Guinea. Fish, turtle, and fruits abound, and the natives have some intercourse in trade with the Chinese.

AIR (Greek *aēr* and Lat. *aer*), a term now limited to the atmospheric air. As formerly employed it might signify various gases. By the ancient philosophers it was regarded as an element. Its properties are treated under the head ΑΤΜΟΣΦΗΡΗ. It is a mixture of nitrogen and oxygen almost exclusively. By sudden and violent compression the oxygen may be made to unite so suddenly with carbonaceous substances as to inflame them. Tinder placed in a tight tube may be lighted by driving a close piston down upon it. Gunpowder is sometimes thus fired in charging holes, made for blasting rocks; and disastrous effects have been produced through ignorance of this property of air.

AIR, in music, a succession of sounds arranged in a pleasing, agreeable manner, and commonly known as a tune or melody. At the present day it is customary to restrict the term to a melody, written for a single voice. Authorities differ as to its etymology, and while some derive it directly from the Italian *aria*, or the Latin *aer*, air, in the natural sense of the term, because it represents a succession of sounds, flowing easily, naturally, lightly, like the movements of the breeze, others consider its use in music as purely metaphorical, and suggested by the relative positions which elemental air and melody occupy in our sphere, and in music. The air is an exceedingly important part of a vocal composition, constituting, according to Haydn, "its life, spirit, and essence," and whether ap-

plied to a simple song, or ballad, forming in itself an entire piece, or to a portion of a more elaborate work, as an opera or oratorio, should always conform in sentiment to the meaning of the words and the situation of the singer. Without this essential quality, however pleasing to the ear, it can never fully satisfy the heart or the intellect. Nothing is more remarkable in the history of music than the reformation effected by Mozart and Gluck, in the latter part of the last century, in the construction of the air. They found it overloaded by so-called embellishments, which composers had been obliged to add, in order that the singer might exhibit the flexibility or culture of his voice, and so artificial in character that every thing approaching nature seemed banished from the opera, or even from less pretentious compositions. By introducing simple, natural, and appropriate melodies, they made the opera what it was intended to be, a musical drama, expressing emotions which language alone would fail to excite. No one who has studied one of Mozart's operas, *Don Giovanni* for example, can fail to perceive the individuality and appropriateness of the airs, even when distributed to a multiplicity of characters. The standard which these composers established has not always been adhered to, and Italian music of the present day, although remarkable for melodic sweetness, is too frequently disfigured by airs destitute of meaning or character. Many of our popular modern airs are open to the same objection—a fact attesting either a lack of inspiration in the composer, or an indifference or distaste in the public for true and expressive vocal music. From this conclusion we may except the German song writers, who strive to construct their airs in direct conformity to the meaning of the words.

AIR, in painting, the atmospheric medium through which every object in nature is viewed, and the effect of which is the object of the artist to reproduce in his picture, so that a proper idea of distance and outline may be obtained.

AIR, or ASSEN, called Air in the Berber and Asben in the Houssa tongue, a country of central Africa, first visited and made known to the European world by the British central African expedition of Richardson, Barth, and Overweg, 1850. It is situated between the 16th and 20th parallels of N. latitude, and between 5° and 10° E. longitude. It is bordered by the Kelowi Tuariks on the north, and by Soodan, or Negroland, on the south. Dr. Barth terms it the Switzerland of the desert, and the frontierland of negrodome. Its northern borders are infested by a savage and inhospitable race of plunderers, who rob and often murder strangers who pass through the country. In the north is the mountain group of Gunge, rising 5,000 feet above the level of the sea. In the valleys, tropical vegetation thrives; here is the northern limit of the doom palm, here are valleys rich in trees, brushwood, and good water; here are trees swarming with beautiful ring-

doves, hoopoes, and other smaller birds; and highlands abounding in asses and goats. To the south are the groups of Mt. Bunday, Eghellal, Anderas, and Baghzan. Near the 18th parallel is the northern limit of the indigo plant. Near the 17th is the northern limit of the giraffe. Many of the table-lands are covered with thick grass. In the south-east, it is uninhabited and waterless, the giraffe is less frequent, and the antelope more numerous. A desert plateau, with an average elevation of 2,000 feet, the home of the giraffe, wild ox and ostrich, divides Air from Negroland. The European travelers made every effort to furnish themselves with all sorts of provisions at one of the chief towns, but were only able to buy small quantities of Guinea corn, butter, and fresh cheese, 2 or 3 goats, and by great trouble a camel-load of durra or sorghum. The inhabitants of Air are blacker, and not so tall as those of Azkar; and instead of the austere and regular northern features, have a rounder and more cheerful expression of countenance. Many chew tobacco mixed with natron, but do not smoke. Their dress was gay, several of them wearing light blue tobes. The principal places are Agadez and Tintellust. Mr. Richardson's journal gives a list of the towns and villages of Air, with their population. In the valleys the land is ploughed by slaves yoked three abreast, and driven by their Tuarik masters. This is probably the most southern place in central Africa where the plough is used; for all over Soodan the hoe is the sole implement for preparing the ground. The government of the country is presided over by the Sultan of Agadez, and his chief vassal is Anneer of Tintellust, an aged and liberal sheik. The inhabitants are strict and even fanatical Mohammedans. The name Air first appears in the description of Leo Africanus, written in 1526. It was introduced by the Berber conquerors, as Asben is the aboriginal name still used by the black and mixed population. The women are highly favored by the customs of the country. If a man marries a woman of another village, he must go and live in her village, not she in his. The hereditary power does not descend to the son, but to the sister's son. The arms, in general, are the spear, the sword, and the dagger, and the immense shield of antelope-hide with which they very expertly protect themselves and their horses; but some use bows and arrows. A few only have muskets, and those few keep them for show rather than actual use. As the valleys of Air are but poorly cultivated, and as every piece of clothing material has to be imported, the population could not be so numerous as it is, were they not sustained by the salt trade of Bilma. The tolls levied on this article in return for protection afforded, constitute almost the whole source of revenue to the sheiks of Tintellust, Loosoo, and others. (See Richardson's "Journal of a Mission to Central Africa," London, 1858, and Dr. Barth's "Travels in Central Africa," London, 1857.)

AIR-BLADDER, a peculiar organ in some kinds of fishes, commonly called by fishermen, the "swim." Fishes endowed with great powers of locomotion, and accustomed to pass rapidly from the surface to the bottom of the ocean, and vice versa, are provided with an air-bladder or a swim, by which they can modify at will, the specific gravity of their bodies in the water, as birds do in the atmosphere, by admitting air into their quills and other hollow portions of their bodies when they wish to ascend, and by expelling it as they descend. Not that fish draw air into their swims and expel it, as birds do in their quills &c., but they have the power of generating gas to fill the swim, like a balloon within the body, when they wish to ascend in the water, and expelling it again, when they descend, that the body may sink more easily by its own weight. Fishermen are well acquainted with the functions of the air-bladder in the cod, and other species, which require to be brought fresh to market at a great distance from the place where they are caught; they perforate the air-bladder with a fine needle, allowing the air to escape, and by this means the fish are unable to rise from the bottom of the well-boats where they live for a considerable time, while brought to market. Cod-sounds are nothing but the salted air-bladders of these fishes. The Iceland fishermen, and those of Newfoundland, prepare isinglass from cod-sounds; and the Russians prepare a superior kind of isinglass from the sounds or swims of the sturgeon. The swim is composed of a lengthened sac, sometimes simple, as in the common perch; or divided into several compartments, by transverse ligature, as in the trout and salmon; sometimes furnished with appendices, more or less numerous, in different species. It is composed of a thick internal coat of fibrous texture, and a thin external coat, the whole being enveloped in the covering of the intestines. The forms of this organ are infinitely varied in different genera and species of fishes. It has in many species no external opening, and the air or gas with which it is distended, is supposed to be secreted, in such cases, by a glandulous organ, with which it is always provided. In fresh-water fishes, the air-bladder communicates sometimes with the oesophagus and sometimes with the stomach, by means of a small duct or tube; and in these instances, no secreting gland is found. A very limited number of species, among which is the common eel, have air-bladders opening by an external duct, and also provided with secreting glands; thus forming, as it were, a link between the two contrasted types of structure in swims. Fishes deprived of their air-bladders, for the sake of experiment, sink helpless to the bottom of the water, and there remain, incapable of moving, or even of maintaining their equilibrium. All the different species of flat-fish, such as skate, soles, turbot, brill, &c., which live only on the coasts, and sand banks at the bottom of the ocean, where they find their food, have no air-

bladders; their bodies are heavier than water, and their mode of life does not require them to ascend. Mackerel and other species, which find their food entirely on the surface, and remain there, have no air-bladders; their bodies are comparatively light, and they need not sink low down in search of food. Fishes, therefore, whose habits, and peculiar organization, confine them either to the surface of the water, or the bottom of the sea, do not require to pass through a wide range of different depths, or encounter different degrees of pressure, from the medium in which they live and move, and therefore do not require an air-bladder to adjust the specific gravity of the body to different depths of water. Some zoologists have supposed that the air-bladder of fishes may be connected with the respiration, but nothing certain is known on this subject. Much remains to be yet observed with regard to the relation of this organ to the general conformation of fishes; for it is sometimes found in one species, and entirely absent in another, which belongs to the same genus.

AIR-CELLS are hollow spaces within the cellular-tissue of the stems, leaves, and other parts of plants, containing air only; the sap, and other matters, being contained in different receptacles. They most frequently occur in water-plants, and very conspicuously in the splendid *Victoria regina* of the silent lakes of Guiana, enabling its rosy leaves to float; in the *vallisneria spiralis*, of which the male specimens immersed in the water rise from the bottom to meet the long stalked females which stand over the surface. Tubular canes which contain air, and allow the naked eye to see through them (if the stem of the plant be cut), occur in the bamboo and other plants of the grass family; but they must be distinguished from the air-cells. Other receptacles of air are to be found in the *cambium* (or the layer of gelatinous cellular-tissue between the wood and the bark) of trees. Here the longitudinal rows of cells become broader, and exhibit, in the progress of growth, small flat air-bubbles between the walls of the contiguous cells; gradually the bubbles become globular or oval, and after the cell walls have increased in thickness, a small canal is formed within the new mass, giving rise to porous vessels. This is readily observable in limes and willows. The air-bubbles obstruct the passage of the sap, and thus cause the consolidation of the wood. The difference between the wood of needle-leaved trees (such as the pine, fir, spruce, larch, &c.), and of broad-leaved trees, chiefly depends upon the number of the cells that are converted into porous vessels.

AIR-GUN, a pneumatic engine resembling a musket, for the purpose of discharging bullets by means of compressed air. It consists of a lock, stock, barrel, and ramrod. The stock is made hollow, and provided with proper cooks for filling it with compressed air by means of a force pump. The lock is nothing but a valve which lets into the barrel a portion of the air compressed in the stock, when the trigger

is pulled. The gun is loaded with wadding and ball in the ordinary way, and the air suddenly introduced from the stock propels it with a velocity proportional to the square root of the degree of compression of the air. There are many ways of arranging air-guns, and there is no doubt that if the discovery of powder had not been made at an earlier date, these instruments would have reached a point of excellence little suspected. The last improvement is due to a scientific gentleman, J. Cornelius Borda. It consists in loading the reservoirs in the gun with a mixture of oxygen and hydrogen in the due proportion for producing water, or more practically, with a mixture of air and ordinary gas-light. The gun is besides provided with a small electric battery, so connected with the trigger, that at the moment a portion of the gas is let out, an electric spark is produced, which determines the instantaneous combustion of the mixture into steam at a very high pressure, in consequence of the excessive heat resulting from the chemical transformation. This air-gun may propel a ball as far as a musket, while an ordinary air-gun propels it only 60 or 80 yards.

AIR-PIPE, a pipe used to ventilate the holds of ships. It is generally made of a cotton or hemp fabric. The pipe passes vertically through one of the hatchways, from the hold or from between decks, to the upper deck, where the opening is enlarged, turned sideways, and fastened to the rigging toward the point from whence the wind blows. The wind forces itself down, and the foul air below comes out through the other hatchways. Air-pipes on steamers are made of iron plates like stove-pipes, or of tin plates. Their diameter is from 12 to 36 inches. The top is made movable, and is provided with a vane which keeps the opening toward the wind by the effect of the wind itself. This superior arrangement has been introduced on board of steamers, because the heat of the furnaces in the boiler room, and the smell of the burning paint and grease in the neighborhood of the engine are almost insufferable. The results of bad ventilation in sailing vessels are cholera, small-pox, and typhus and other fevers, which, though not immediately and certainly fatal, have destroyed more lives than heat and bad smells. It would be very desirable to have improved air-pipes introduced by law on board all kinds of vessels.—The name of air-pipe is also given to pipes under, over, or inside of which a fire is lighted to create a draft for the purpose of ventilation.

AIR-PLANTS, a term applied to some species of the families of *Bromeliaceae* (*Tillandsia usneoides*, hanging in festoons from the forest trees of tropical America, moss-like, and *T. usneoides*, perfuming the balconies of houses in Buenos-Ayres, &c.), and of *orchidaceae* (namely, the parasitic groups of them, such as the *aërides*, *arachnides*, or *flos aëra* of the East Indies, and many others), because of their being able to

live for a considerable time, suspended in the air, without apparently receiving any nutriment. The hot, damp, and shady forests of the torrid zone in Asia, Africa, and America, abound in gracefully and grotesquely shaped and deliciously scented species of *orchideæ*, so that in Java alone there are nearly 800 varieties. During the dry season, which is that of repose, corresponding to our winter in this respect, these parasites wither, lose their leaves, and seem to be dead; but as soon as the gentle, preparatory rain begins to fall, they revive, and become fully developed into their glorious existence by the ceaseless showers that transform the whole surface of the country into a magnificent hot-house. They are attached, amidst gigantic grasses, ferns, and numberless climbers, to trees, rocks, &c., and are nourished by the continual warm vapors that fill the forests. Stagnant water is injurious to them, even by mere proximity. The roots of most fully developed air-plants, by which they cling to their supports high in the air, have an outer parchment-like layer, in which the spiral cells exhibit detached fibres and simple walls; thus in *oncidium altissimum*, *epidendrum elongatum*, &c. In order to enjoy these beautiful plants in our houses, we must surround them by the natural circumstances in which they prosper, viz.: rotten wood, a very little chopped moss, and fragments of flower-pots for soil, with heat, damp air, diffused light, absence of stagnant water and of impurities.

AIR-PUMP. I. In natural philosophy, a machine for exhausting the air from a vessel. The first machine of this kind was made in 1650 by Otto de Guericke, burgomaster of Magdeburg, shortly after Galileo had discovered that air was ponderable. Since then this instrument has been much improved, principally by Hook, Papin, Hawksbee, Boyle, and Babinet. In its most approved form it consists of a circular brass plate, on which is placed a bell-shaped glass vessel. The inside communicates through a hole drilled in the centre of the plate, with two vertical pump cylinders. The piston rods of the two pistons are provided with racks, acted upon by a pinion placed between them, on the shaft of which is a double crank. This crank is worked up and down with both hands. The rim of the glass vessel, called the reservoir, is ground perfectly flat, and a little lard is rubbed upon the edge before it is applied on the brass plate, which is likewise ground flat by a circular sliding motion. Thus an air-proof joint is formed. Valves, placed either on the piston or on the cylinders, a stop cock on the pipe, and a mercury vacuum gauge, communicating with the reservoir, complete the machine. At each stroke of a piston, a cylinder full of air is expelled on one side the piston, and the air of the reservoir expands to fill the space on the other side; at the return stroke, this air is expelled in its turn, and so on. The air of the reservoir becomes more and more dilated till the

moment when a full cylinder of it, compressed into the small space necessarily left between the piston and the cylinder bottom, has not a sufficient pressure to open the valve; that is to say, when this pressure is less than 14 pounds to the square inch, which is the pressure of the atmosphere, acting on the other side of the valve. As a consequence of its principle of action, a perfect vacuum cannot be produced by this machine, but it will be approximated in a direct ratio with the perfection of the workmanship of the pump; it is usually of $\frac{1}{12}$ of an inch of mercury. The improvement introduced by Babinet consists in a cock of a peculiar form placed under the pumps, which by means of four passages makes one pump act on the other, and enables the operator to obtain a more perfect vacuum, that is, $\frac{1}{12}$ of an inch of mercury. This cock is worked by hand, and is used only after the vacuum has been brought to two millimetres of mercury, possible by working the pumps alone. This cock might be worked automatically, if it were desirable. It is obvious that a greater perfection might still be obtained by making 8, 4, or more pumps act in succession, that is, the first exhausting the second, the second exhausting the third, and the last exhausting the reservoir. The last innovation in air-pumps is due to Mr. Kennedy. This gentleman, struck by the want of stability and portability of the ordinary instruments, has devised one, in which the pump cylinders are horizontal, and which he claims to be more convenient and cheaper. Experience has not yet proved this to be an improvement. Air-pumps are used by professors of natural philosophy, to show that in a vacuum combustion is arrested, smoke falls like lead, cold water boils, some insects live several days, fermentation is stopped, &c. The celebrated process of Appert for the preservation of alimentary substances, is founded on the last-mentioned property, but the necessary vacuum is produced, not by using an air-pump, but by boiling the boxes of preserves, thus producing steam that expels the air and condenses into water when cooling. The only manufacture in which air-pumps are used is that of aneroid barometers. II. In the steam engine, the air-pump is a simply acting pump, used in condensing steam engines to pump out of the condenser the condensed steam, the water introduced for condensing, and the air that has come out of this water when warmed by the condensation of steam. This air-pump is one of the inventions of Watt. Thirty gallons of water contain in solution 1 gallon of air, and in weight 28,100 lbs. of water contain in solution 1 lb. of air. This shows that an air-pump has much more work to do in pumping out water than in pumping out air, but it has been named after the last fluid, because this was for a time a hidden impediment to the working of condensing engines, which was overcome by placing the pump in such a position that the air can be taken out with the water.

AIR-VESSELS, or properly **SPIRAL VESSELS**,

are supposed by some botanists to be the only formation by which air is conveyed into the vegetable system; but air has access to many parts of the plant by means independent of the spiral vessels. Spiral vessels differ from spiral cells (or vermiform bodies) only by dimension, so that there is a constant transition from the latter into the former. Both are quite as frequently filled with sap (in the youngest portions of the plant) as with air (in the full-sized organs). They are first perceptible in the bud. The spiral vessels of the wood are to be distinguished from those of herbaceous plants, both as regards their origin and their function. The latter has not yet been fully explained, owing to the diversity of views entertained by different inquirers. Spiral formation begins when the simple cell-membrane ceases to exist. This, as well as all other transitions from one form to another, is accompanied by modifications and changes of the chemical constituents of the vegetable body. In some cases the air in the cavities of the plant contains more oxygen than the atmospheric.

AIRANI, in ecclesiastical history, a sect of Arians in the 4th century, who refused a place in the Trinity to the Holy Ghost. They are sometimes called Airanists, and are said to have taken their name from one Airos, a distinguished leader and preacher in their body.

AIRD, THOMAS, a Scottish poet, who published a volume of poems in 1849. His power of sketching natural scenery is considerable. In purely imaginative poetry, his "Devil's Dream on Mount Akebeck," his "Demoniac," and his "Nebuchadnezzar," are his best efforts.

AIRDRIE, a borough town in Scotland, county of Lanark, parish of New Monkland, 11 miles E. by N. from Glasgow, and communicating with that city by canal and railway. The town is well-built, paved, and lighted with gas. It is divided into two parishes, has a municipal organization, and, in conjunction with Lanark and Hamilton, sends one member to parliament. In 1851, the population numbered 14,435. It is growing rapidly into importance, from the extensive coal and iron mines in the neighborhood, and also from its proximity to Glasgow, whence many of its weavers obtain employment.

AIRE. I. A river of Yorkshire, in England, which, subsequently enlarged by affluents, changes its name and becomes the Humber. After a course of several miles, it joins the Calder, and the two, having been widened and deepened, form one of the links in the canal system of Yorkshire and Lancashire, under the name of the Aire and Calder navigation. II. A fortified city of France, department of Pas-de-Calais, and arrondissement of St. Omer, on the river Lys. The town is well built, and has manufactures of cotton and woollen goods, hardware, delf, soap, and oil, which latter is extracted from seeds. Pop. 9,200. III. A town in the south of France, department of Landes,

and arrondissement of St. Sever, on the left bank of the river Adour. It was the residence of Alaric II., king of the Visigoths, and has been since the 5th century the seat of a bishop. Pop. 4,500.

AIREY, SIR RICHARD, K. O. B., major-general, and, at present, quartermaster-general of the British army, entered the service in 1821 as ensign, was made a captain 1825, a lieutenant-colonel 1851, and as such took the command of a brigade in the army of the east in 1854. When the Crimean expedition was about to sail from Varna, he was made, Sept. 1854, quartermaster-general of the expeditionary force, and, as such, became one of the 6 or 8 officers who, under the command of Lord Raglan, have been charged with destroying the English army by dint of routine, ostensible fulfilment of duty, and want of common sense and energy. To Airey's share, fell the fixing of the proportions in which the different articles of camp-equipage, tents, great-coats, blankets, boots, should be dealt out to the various regiments. According to his own admission (before the Chelsea commission of inquiry), "there never was a period after the first week in Dec. 1854, when there was not at Balaklava a considerable supply of warm clothing, and at that very time there were regiments engaged at the front in the trenches, which were suffering acutely from the want of these very articles, which lay in readiness for them at a distance of 7 or 8 miles." This, he says, was not his fault; there never having been the slightest difficulty in getting his signature of approval to a requisition for such articles. On the contrary, he gives himself credit for having, as much as possible, abridged and simplified the routine process of approving, reducing, or disapproving the requisition sent to him by divisional and regimental officers.

AIROLA, ANGELA VERNICOLA, Italian painter, died 1670. She was a noble Genoese lady, and nun of the convent of Bartolomeo dell' Olivella. She studied drawing and painting under Domenico Fiasella, and painted several pictures for her own convent and for different churches in Genoa, one of which is the altar-piece in the church Jesus-Maria.

AIRY, GEORGE BIDDELL, astronomer royal of England, born in 1801. He was a fellow of St. John's college, Cambridge, a university which, since the days of Newton, has always been pre-eminent for its mathematicians; afterward he became a fellow of Trinity, and was appointed Plumian professor of astronomy in 1828. In 1836 he became president of the London astronomical society, and on the death of Mr. John Pond he became astronomer royal. Of his various memoirs and communications, entered in the proceedings of the astronomical society, one on the mode of simplifying the theory of planetary perturbations is best known. Since he has taken the superintendence of the Greenwich observatory, he has completed a reduction of the observations of the moon which had

been taken there. He contrived a new instrument for observing the moon off the meridian, and replaced the old mural circle and transit instrument by another of simple construction and effective utility. Professor Airy's name has special interest in this country from his having prepared the formula and methods for conducting the survey of the Maine boundary, between Canada and the United States. It has been charged against Professor Airy, that his tardiness in recognizing Adams's calculations and observations of the new planet Neptune, has lost to England the honor of its discovery.

AISLE, in architecture, is the term applied to the wing of a building. In Gothic cathedrals and churches, it is used to designate the lateral divisions of the building separated from the middle of the nave by two rows of piers. The space between the two aisles is sometimes incorrectly spoken of as the middle aisle.

AISNE, a department in the north of France, which takes its name from the river Aisne, a tributary of the Seine. The inhabitants are chiefly taken up in agricultural and grazing pursuits, and the quantity of farm produce and live stock in this department is very considerable, exceeding that of most parts of France. A profitable trade is carried on in pressing the oil from the beech mast of the extensive forests. It has several towns noted for their manufacturing pursuits. The mirrors of Saint Gobain are known throughout France. Population about 600,000. Area 2,196 square miles. Chief town Laon.

AISSE, M^{lle}, a romantic young lady, daughter of a Circassian chief, whom the French ambassador at Constantinople bought in the slave market for 1,500 francs. She was born in 1693, and died at Paris in 1788. She was but 4 years old when the Comte de Ferriol purchased her. He took her to Paris with him and had her educated by the first masters, under the superintendence of his sister-in-law, M^{me} de Ferriol. Her magnificent person, and her fine talents, were temptations which the French nobleman could not resist, and she had scarcely reached the age of womanhood when Ferriol gave his desires full scope. That she was deserving of a better fate is proved by her repulse of the brilliant offers of the duke of Orleans. The Chevalier Aydie, who had assumed the vows of the knights of Malta, at length won her love. He was willing to become liberated from his vows, and marry her; but she herself opposed that step. She went to England and gave birth to a daughter, who was brought up in a convent under the name of Miss Black. Her unhappy passion, and the moral conflict which it caused, gradually undermined her strong constitution, and she sank into the grave at the age of 40, still beautiful and beloved by all who knew her. Her letters describing all the important personages of the court and the manners of the time, are written in a charming, open-hearted, and naïve vein, and were thought worthy by Voltaire of being

published, accompanied by annotations of his own.

AISVARIKAS, a name given to several Buddhist sects. Buddhism has two cosmogonies; the one recognizing the existence of a purely spiritual supreme power, who out of his own will created all things from nothing. This was the doctrine of the Aisvarikas, and they answer to the spiritualistic cosmogonists of Christianity. The problem of a superintending Providence by such an absolutely unconditioned and infinite power, the Aisvarikas dismissed with a simple negation. The other Buddhist cosmogony attributed the existence of the material universe to the productive force of nature, evolving all things under the necessity of fixed and incessantly operative laws. This was the doctrine of the Suabhavikas, and they correspond to the atheistic cosmogonists under Christianity. The Aisvarikas were subdivided also into two sects; one of which taught that the Supreme Being was the only and immediate principle of all that exists, while the other, by a sort of compromise with the Suabhavikas, taught that the Supreme Being was eternally united to a material principle, the mediate cause of creation. The Aisvarikas taught the entire efficacy of asceticism, believing that the highest virtue and felicity were attainable, even to fellowship in the attributes of Buddha, by self-denial and abstraction.

AIT-EL-ARBA, a large village in northern Africa, in the country of the Benni-Yeni, a tribe of the Kabyles. The principal occupation of its inhabitants for the last 2 centuries has been counterfeiting the gold and silver coins of all nations, especially of France and Spain. These counterfeits are made with such skill that the officers of the French treasury in Algeria, have often been deceived by them. The people of Ait-el-Arba have been regarded with contempt by the Kabyles in general on account of their dishonest trade, and once their neighbors seized their dies and other tools and destroyed them. The implements were, however, soon replaced, and the business thrived more than ever till June, 1857, when the French army under Marshal Randon took possession of the village.

AITON, WILLIAM, a Scotch gardener and botanist, born near Hamilton, in Scotland, in 1731, died in 1798, at Kew palace. He emigrated to England in 1754, and in 1759 obtained the management of the royal botanical garden at Kew. Under his care Kew gardens became the principal scene of botanical culture in the kingdom. In 1789 he published his *Hortus Kewensis*, in which more than 5,000 species are described. The system of arrangement adopted is the Linnæan, and the author indicates the origin, mode of culture, and the epoch of introduction into England, against each entry. He was assisted in this task by 2 learned Swedes, Dr. Solander and Mr. Jonas Dryander. George III. was very fond of him, and often expressed to Aiton the gratitude he felt toward the

man who had made Kew gardens what they were.

AITZEMA, *LIEUWE VAN*, a Dutch historian, born 1600, at Dokkum, died at the Hague in 1669. His great work is *Zaaken van staat en oorlog in ende omtrent de vereenigde Nederlanden*. It is very valuable because it contains important original documents that had appeared between the years 1621 and 1668. He was also resident agent of the Hanseatic towns at the Hague.

AIX. I. A town of southern France, department of Les Bouches-du-Rhône; population 28,000; 580 miles from Paris, 18 from Marseilles. It is the seat of an archbishopric, and possesses a museum and one of the best provincial libraries of France, containing 80,000 volumes. It was the *Aquæ Sextiæ* of the Romans, so called on account of its thermal springs, by Sextius Calvinus, who fought here a battle with the Gauls, B. C. 128. Between Aix and Arles is the battle field in which Marius gained his great victory over the Teutones. The counts of Provence made Aix their capital and residence. The town is handsome and the public buildings repay inspection. The cathedral, the clock tower in the market-place containing a curious clock, and the hotel de ville, are fine specimens of middle age architecture. The mineral baths are but little frequented; they are impregnated with sulphur, and are said to soften and improve the skin. II. A bathing place of some repute in Savoy. The waters are warm, impregnated with sulphur, and have a temperature of from 112° to 117° Fahrenheit. The ancient name was *Aquæ Allobrogum*, *Gratianæ* or *Domitianæ*. Near it is the lake Bourget. It has only about 1,000 inhabitants, and the place is dependent on the visitors who come in search of health, tempted by the mineral springs and the extreme salubrity of the atmosphere. It is about 7 miles from Chambéry.

AIX LA CHAPELLE (German, *Aachen*), one of the smallest provinces of the Prussian monarchy. The capital of the same name is about 40 miles W. S. W. of Cologne. Population about 40,000. Religion, Catholic, except about 1,200 Protestants and 200 Jews. The town is pleasantly situated on rising ground, and is a centre for Rhenish industry; it has an especial reputation for pins and needles. It has direct railway communication with Belgium and other parts of Germany. The city is handsomely built, contains a fine gothic town house, and its cathedral is remarkable not only for its beauty, but for containing the tomb of Charlemagne, which is in the centre of the building, and has the inscription *Carolo Magno*. On the western end of the building is a tower where the relics are kept, which are so sacred that they are only exposed to public gaze once in 7 years, and then from the gallery of the tower. Aix la Chapelle was the birth-place and favorite residence of Charlemagne, and until 1558 all the German emperors were crowned

there, and their portraits, together with Charlemagne's chair and many other interesting historical memorials, are preserved, either in the cathedral or in the town hall. The imperial insignia were removed to Vienna in 1794. The burghers enjoyed rare exemptions and privileges until the reformation; at which epoch the reformed cause was warmly espoused by the citizens. After desperate contests, however, the Catholics, with the aid of Spanish soldiery from the Netherlands, suppressed Protestantism, and the privileges were taken away from the city. The baths are a great attraction to strangers. They were known to the Romans, by whom the place was called *Aquigranum*, either from an epithet of Apollo, to whom thermal springs were sacred, or from Severus Granius, a Roman commander, about A. D. 125. The waters contain sulphur, and have a heat of 143° Fahrenheit. They are very beneficial in skin and paralytic affections. Near the city, in a suburb, there are other springs, both hot and cold, and not impregnated with sulphur.—**TREATY OF, 1668**. At the death of Philip IV. of Spain, 1665, Louis XIV. asserting a claim to parts of the Spanish dominions in right of his wife, Maria Theresa, under the Brabant laws of devolution, commenced the war of succession and seized the province of Franche Comté, together with several fortresses and strongholds in the Netherlands. The Spaniards were unable to make head against such leaders as Condé and Turenne, and Holland, alarmed at the progress of the French, concluded the triple alliance with England and Sweden. Louis accepted mediation in preference to the alternative of arms, and a congress opened at Aix la Chapelle, ended in a treaty, May 2, 1668, by which Franche Comté was given back, but several of the strong towns in the Netherlands retained, including Lisle and Valenciennes.—**II. TREATY OF, 1748**. The Austrian war of succession had arisen from the claims made by several German princes to the throne of Austria, in opposition to Maria Theresa, who succeeded to the throne in virtue of the Pragmatic Sanction. The war lasted from 1740 to 1747, and all the powers in Europe were engaged, on one side or other—England and France being, as usual, opponents. The preliminaries were signed in April, 1748, and ratified in October. The Pragmatic Sanction was renewed, and the *status quo ante bellum* of all parties restored. From the indisposition of Frederic the Great to comply with the last article and to restore Silesia, the 7 years' war arose subsequently.—**CONGRESS OF, 1818**, was held for the purpose of settling outstanding questions incident to the war which had been concluded by the battle of Waterloo. This congress was attended by the emperors of Austria and Russia, and by the king of Prussia in person, and by the representatives of the allied powers, Prince Metternich, Lord Castlereagh, Duke of Wellington, Counts Hardenberg, Bernstorff, Neesselrode, and Capo d'Istria. France

was invited to coöperate, which she did, and sent Talleyrand. The conferences resulted in the declaration by the 5 great powers to adhere to the arrangement for the partition of Europe, known as the holy alliance, and in a circular to that effect to all the minor courts of Europe. Upon this, the allied army of occupation, which had remained in France for nearly 8 years, broke up their cantonments and evacuated the French territories.

AIZANI, or **AZANI**, a city of Asia Minor, whose modern name is Schaffer Hissar, in the ancient province of Phrygia. It is mentioned by Strabo. Its numerous remains have been made known to the moderns by the French architect, Charles Texier, who visited Aizani in 1834. Mr. Hamilton and Sir C. Fellows have since described them. The remains comprise an ancient temple of Jupiter, a theatre, stadium, and gymnasium. The theatre is in fine preservation. Its greatest diameter was 185 feet, and the auditorium had 15 rows of marble seats. The river Rhyndacus passed through the town and was spanned by two bridges of white marble, each consisting of five semi-circular arches. There are besides many tombs. (See Hamilton's "Researches in Asia Minor," and Sir C. Fellows's "Asia Minor.")

AJACCIO, the chief town of Corsica, a seaport on the western side of the island, in $41^{\circ} 55' N.$ lat. $8^{\circ} 44' E.$ long. Population, in 1852, 11,944. It is the see of a bishop, and has a cathedral, a college, and a naval school. The largest ships can lie along its wharves, but the harbor is dangerous during the prevalence of south-west winds. Wine, olive oil, and fruits, are the chief articles of trade. It is the birth-place of Napoleon Bonaparte, and the house in which he was born is still in good preservation. A monument to Napoleon, consisting of a marble statue on a high granite pedestal, was erected in the market-place by the people of Ajaccio, May 5, 1850.

AJALON, a city of the tribe of Dan, in the valley of which Joshua commanded the moon to stand still. The modern town is called Yálo.

AJAN, an extensive tract on the eastern coast of Africa, usually coupled with Adel. It extends from Zanguebar to Cape Guardafui, about 10 degrees of latitude. The southern coast is sandy and barren; the northern is high, especially at Cape d'Orfui, which is a bluff toward the sea, backed by lofty mountains of singular shape. The Somalis, or Berbers, are the inhabitants. There is no river of importance. Ajan was known to the ancients, and called Azania. It is mentioned in the Periplus of the Erythraean sea. The inhabitants traded with the Arabs in ivory, tortoise-shell, &c., and were under Arab control, and Rhaptum, the ancient capital, was the farthest point to the south known to the Greeks.

AJASALUK, or **AYASOOLOOK**, a wretched Turkish town in Asia Minor, built chiefly of materials furnished by the ruins of ancient Ephe-

sus. The remains of the great temple of Diana, spoken of in Acts xix., have been discovered here. Lat. $37^{\circ} 55'$, long. $27^{\circ} 20'$.

AJAX. There were two chiefs of this name engaged in the Trojan war, Ajax the Greater, and Ajax the Less. The greater was the son of Telamon, king of Salamina, and third in direct male descent from Jupiter. He was deemed to be second only to Achilles in martial prowess, equal to him in strength, but inferior in agility. He led the forces of the Salaminians. Hector retired before the Telamonian Ajax on more than one occasion in the course of the war. At the death of Achilles, the arms of that hero were allotted to him who had deserved best of the Greeks. But two advanced claims to this honor, the greater Ajax and Ulysses. The former alleged his preëminence as a warrior, the latter as a counsellor. The arms were adjudged to Ulysses. Ajax went mad, committed many excesses, and slew himself upon that sword which he received in exchange from Hector for a belt, after a combat. This catastrophe forms the subject of the fine tragedy of Sophocles, called the "Ajax." In the Odyssey, Ulysses is represented as descending to the infernal regions and making fraternal overtures to Ajax there. Ajax, unforgiving, stalks away sullenly, and without reply.—**AJAX**, son of Oileus, was remarkable for his swiftness of foot. At the sack of Troy he violated Cassandra, in the temple of Minerva. The goddess, in revenge, raised a storm against his fleet as he was returning home. The Oilean escaped to a rock, and then ridiculed and defied the vengeance of the gods. Neptune, to humble the insolence of a mortal, cleft the rock with his trident, and tumbled the lesser Ajax into the boiling surge.

AJEHO, a newly settled town in the Chinese empire, territory of Mantchooria, situated 75 miles to the W. of Soongaree, and about 120 N. of Kirin. It has a population of Chinese immigrants amounting to 60,000, which is rapidly increasing.

AJISTAN, a large and straggling Persian town in the province of Irak-Ajemea, 80 miles E. S. E. of Kashan, celebrated for its pomegranates. The town is surrounded by gardens, and contains a royal palace.

AJMEER, **AJMEER**, or **RAJPOOTANA**, was formerly the capital of Agra, and is now the capital of the province of Ajmeer. It is built on a hill side, the summit of which is crowned by a fortress, 220 miles S. W. of Delhi. The town is finely situated, well built, and has a large bazaar. It has a population estimated at 25,000, and is one of the most prosperous places in British India.

AJURUOCA, a Brazilian town in the province of Minas Geraes, 117 miles N. of Rio Janeiro. It is situated on the Ajuruoca river, which is here spanned by a bridge. Tobacco, millet, mandioca, sugar-cane, and coffee, are produced in the district in rich abundance. The town and district contain a population of 12,000.

AKABAH, a fortified village of Arabia, situated in an extensive date grove, or oasis, near the northern extremity of the gulf of Akabah in lat. $29^{\circ} 24' 30''$ N. long. $35^{\circ} 6'$ E. It is garrisoned by a few soldiers from Egypt, who keep the Arabs in awe, and protect the annual Egyptian pilgrims.—The **GULF OF AKABAH**, an inlet of the Red sea, about 12 miles wide, forming its N. E. arm, after its bifurcation, in lat. 28° N. It extends in a N. E. direction to lat. $29^{\circ} 36' 30''$ N., bounding the mountainous peninsula of Sinai on the S. E.

AKBAH, a famous Saracen general, in the first century of the Hegira. Having conquered the nations of northern Africa, he was slain while engaged in quelling a rebellion among the Greeks and Africans, in the eastern part of his dominions.

AKBAR JELAL-UD-DEEN MOHAMMED, the greatest of all the emperors of Hindostan, born Oct. 14, 1542, died in Sept. 1605, after reigning half a century. At the time of his accession to the throne, his dominions embraced but 3 provinces; in the 40th year of his reign they numbered 15. Akbar was tolerant of all forms of religious belief; he diminished the cruel and oppressive taxes laid on his Hindoo subjects, reformed the administration of the revenue, promoted commerce, and improved the roads of the empire. He encouraged learning and literature, and instituted schools in all parts of his empire.

AKENSIDE, MARK, an English physician, celebrated as the author of one of the best didactic poems in the language, born at Newcastle-upon-Tyne, Nov. 9, 1721, died at London, June 23, 1770. His father was a butcher at Newcastle-upon-Tyne, an honest and worthy citizen; and the future poet bore a permanent token of the paternal vocation in the shape of a lameness caused by the fall of a cleaver on his foot when a child. Having resolved upon the profession of medicine, Akenside pursued his studies with assiduity both at Edinburgh and Leyden, and after receiving his degree in 1744, established himself as a practitioner in Northampton, where a year and a half's experience convinced him there was little success to be anticipated; and he, therefore, removed to London, and there passed the greater part of his life. Although his reputation as a poet has eclipsed his name in medical annals, it would appear, from contemporary evidence, that Akenside was thoroughly read in the science of medicine, that he cherished a high estimate of its dignity as a profession, and wrote with great insight and correctness of its principles. He was too reserved in temper and self-sustained in manner to practise the conciliatory address whereby a London physician becomes a general favorite; but his opinions were much respected; he held several responsible medical offices, contributed valuable papers to the journals, frequented the most cultivated society, and maintained a thoroughly respectable and scholarlike deportment, quite diverse from the

wayward improvidence so often found associated with the poetic instinct. This element, however, in Akenside was subordinate to method, taste, and learning; his mind was elegant rather than impulsive, and expatiated in the sublime abstractions of thought more than amid the charms of passion; his sentiment was chastened by intellectual discipline, and his muse was calm and lofty, ingenious and graceful, rather than capricious and impassioned. He was a great admirer of Plato and Cicero, of Shaftesbury and the character of Timoleon; he was precise in dress, systematic in affairs, more retrospective than observant, fond of the images and the forms of classical literature, and with a remarkable sense of the grand and appropriate in language. Hence his defects are the want of spontaneity and simplicity, and his merits those of reflection and rhetoric. He had no facility of adaptation, but much genuine self-respect; he was exacting, but strictly just; exclusive in his social taste, but with a high standard of integrity; more proud than vain, and more fastidious than companionable. Intimately known to but few, he was respected by all as a gentleman and a scholar. His careful dress, his stiff wig, and his formal address, might impress a stranger with the idea of accomplished pedantry; but, once fairly engaged in conversation with a genial and appreciative auditor, the philosopher and the man of cultivated taste and elevated sentiments appeared conspicuous. He spoke well at the medical club; he experienced an early disappointment of his affections; he passed much of his time over books, and in professional duties; and he lived precisely at that era when the artificial school of verse had reached its culminating point, and before the more genuine inspiration of Burns and Wordsworth had ushered in simple and heartfelt strains of personal emotion, caught from actual nature. These considerations enable us better to estimate the claims of Akenside as a poet. His "Pleasures of Imagination," published in 1744, was and is still regarded as a remarkably successful attempt to blend philosophical discussion and classical learning with free and eloquent versification. Inferior in heroic impulse to Campbell's "Pleasures of Hope," and in tasteful rhymes to Rogers's "Pleasures of Memory," it excels both in metaphysical insight and scholastic elegance; more artificial in style, it was better adapted to please the learned and speculative; and, although the subject of critical objections, soon took a permanent hold upon public estimation. Dr. Johnson, according to Boswell, could not read it through; the poet Gray thought its philosophy "spurious," and traced many of Akenside's metaphysical notions to Plato, Lucretius, Hutcheson, and Addison's essay on the imagination. The philosophy of the poem is highly intellectual. There are passages of memorable force and beauty; as, for instance, the fond allusion to his native landscape on the river Tyne, and to the death of

Cæsar; and the eloquent parallel between art and nature. Akenside's blank verse has a modulation of its own—energetic and flowing; his apostrophes are often fine, and his metaphors ingenious and striking; the spirit of romance is singularly blended throughout with a tinge of pedantry; natural science rather than beauty, and philosophy rather than exclusively poetic ideas, form the basis of his argument; but the scope of the whole is comprehensive and elevated, and the tone musical and sustained. Of Akenside's minor pieces, the "Hymn to the Naiades" has been cited as thoroughly imbued with the genuine classical spirit, and conveying the pause and harmony of the Greek poets; and Burke declared the "Ode to Lord Huntingdon" "one of the finest in the language." More sublime than vivacious, and more splendid than natural in imagery, it was the confessed desire and aim of his muse to "tune to Attic themes the British lyre." Dr. Akenside read the Gultonian lectures in anatomy, and in the thesis he published on receiving his degree (*De Ortu et Incremento Fatus Humani*), he proposed an original theory since confirmed and adopted. Of the English physicians who have left a name in literature, such as Garth, Arbuthnot, Darwin, and Armstrong, Akenside enjoys the highest rank. Refined but somewhat irascible, strict in morals but formal in bearing, he consistently represented the scholarly poet of his day. All evidence combines to attest his rectitude and loyalty as a man. In the invocation of his chief poem, we recognize the zeal and discrimination of his friendship; the generosity of Dyson, and his delicate respect for Akenside's character; their long and perfect association, and the sincere glow of the poet's tribute—prove a rare and beautiful affection. For so proud a man as Akenside to receive a pecuniary allowance of £300 annually from Mr. Dyson (who was subsequently clerk of the house of commons, a lord of the treasury, etc.), argues in this benefactor of genius the noblest qualities; and his reserve in regard to his friend's private opinions and life—when appealed to for information, indicates a respect for his memory uncommon in those days of literary gossip. Less considerate associates found occasion for ridicule in Akenside's grave air, his aphoristic phrases, his extravagant speculations in regard to human freedom, and his intense eulogy of classic authorities and characters; and it was conjectured that Smollett intended to parody these traits in the character of the doctor who, in the story of *Peregrine Pickle*, gives an entertainment in the fashion of antiquity. But these foibles do not essentially mar the noble image of a man of exalted character and great abilities. His career was abruptly terminated in the forty-ninth year of his age. He died in London from an attack of putrid sore throat, and was buried in St. James's church.

AKERBLAD, JOHAN DAVID, a distinguished Swedish scholar, who died at Rome in Feb. 1819. He made extensive researches in Runic,

Phœnician, Coptic, and hieroglyphic literature. While holding the office of secretary to the Swedish embassy at Constantinople, he visited Jerusalem and the Troad. He was afterward chargé d'affaires at the French court, and spent the closing years of his life at Rome. He was a member of the French national institute, and of other learned bodies.

AKERMAN, a town in Bessarabia, near the mouth of the Dniester, where the treaty was concluded, 1826, by which a Russian protectorate was established over the Danubian provinces.

AKHALIES, a class of turbulent fanatics among the Sikhs of Hindostan. Their body is recruited from all the outcasts of the community. They recognize no Supreme Being, but regard fate as the cause of all things.

AKHALZIKH, a district in Georgian Armenia, N. of Erzeroom, a valley of the Keldir mountains. Anciently it was called Keldir or Chaldir; but its present name is derived from the city or town of Akhalzikh, the residence of the Turkish pasha, now included within the Russian boundary. The district is mountainous, some of the highest peaks attaining an altitude of 8,000 feet above the sea. Winter here is long and rigorous, while the summer temperature is the other extreme. The products are maize, wheat, barley, flax, tobacco, and cotton; fruits, more especially the grape, abound; cattle, skins, honey, tallow and wax are exported. The districts recently ceded to Russia by the treaty of Adrianople, are on the S. W. frontier of Russian Georgia, comprising an area of 7,000 square versts; and including the fortresses of Azghur and Akhalkalaki. The latter town has a population of 18,500, and is remarkable for a mosque, built by the Sultan Ahmed, in imitation of that of St. Sophia at Constantinople.

AKHISSAR, or EX-HISSAR, the ancient Thyatira, a town in the pashalic of Anatolia, in Asia Minor, 58 miles N. E. of Smyrna. It is built on somewhat elevated ground, and contains, it is said, 6,000 inhabitants, with 1,000 Turkish, 800 Greek, and 80 Armenian dwellings. There are also several khans and bazaars, a Greek school, and many antique remains.

AKHLAT, a town of Asiatic Turkey, in the pashalic of Van, at the base of the Seiban Dag, on the N. W. shore of Lake Van. It is a very ancient place, and in its palmy days was the residence of the Armenian kings. Now it consists of 1,000 dwellings, surrounded by a double wall and moat, and contains a population of 5,000. The climate is cold, but vineyards and orchards flourish in its vicinity. It is under the government of a bey. It is the scene of past conflicts between the Greeks, Armenians, and Persians. Its ruin began in 1228 by Jelal-ud-deen, who took and devastated it; was completed in 1246 by an earthquake. Aladdin took it in 1548, and for a hundred years it was retained by his family. Subsequently it became subject to the Turks.

AKIBA BEN JOSEPH, a celebrated Jewish rabbi, who lived about 100 years after Christ,

and is deemed one of the principal fathers of the oral law, or Mishna. A native of Syria, he travelled for information in Arabia, Gaul, Africa, Egypt, and other countries. He taught an academy at Jaffa with the best results. He declared for the impostor Bar Okeba, and announced that he was the star of Jacob predicted by Balaam, and the true Messiah. Okeba, with Akiba, his high priest, attacked the Roman province of Judea, and committed great cruelties there upon the Christians. The Roman army, commanded by Rufus, put the insurgents down, killed the pretended Messiah, and took Akiba prisoner. He was flayed alive with iron hooks. The Jews venerated him as a martyr, and made pilgrimages to his tomb.

AKIMOFF, a Russian painter, born about 1750, died 15th May, 1814. After having studied in several of the best schools of Italy, he was named rector of the academy of fine arts at St. Petersburg. His forte lay in the portraits of saints, many of which adorn the church of Alexander Nevskoi.

AKINDYNUS, GREGORIUS, a Greek theologian of the 14th century. The Hesychiasts or Quietists who lived in the monasteries on Mt. Athos, claimed that they could see God face to face, as Jesus did on Mt. Tabor. Akindynus and Barlaam opposed this pretension, were complained of, and condemned by the council held at Constantinople.

AKOOSHA, a Russian town and territory in the province of Daghestan. The territory is on the eastern slope of the Caucasus, and the town, which is the capital of the district, is about 55 miles W. N. W. of Derbend.

AKOOTAN, an active volcano, and island of the same name in the north Pacific, one of the Aleutian groups, belonging to Russia. It is 3,832 feet in height.

AKOUI, a Chinese general, of Tartar race, and prime minister of the Emperor Kien Lung, lived in the second half of the 18th century. He conquered certain mountain provinces which had maintained their independence of the Chinese arms for 2,000 years. He was also successful in reducing to their bed the waters of the Hoang-ho, which had overflowed large tracts of country, and deprived hundreds of thousands of their means of subsistence.

AKRON, a town in the township of Portage, and capital of Summit co., Ohio. It is situated 36 miles S. of Cleveland, on the Ohio and Erie canal, at its junction with the Pennsylvania and Ohio canal, and on the Cleveland and Zanesville railroad. Akron was first settled in 1825, in 1827 the Ohio and Erie canal was finished to this point, and from that time Akron rose in importance, and in 1841 it was chosen the county seat. The canal was finished in 1832, at an expense of \$5,000,000, and the same year it was connected by another canal with Beaver, Pennsylvania, thus giving it a new impulse.—The canal and Little Cuyahoga river supply ample water power to the town, and keep numerous large manufactories in operation. Its

mercantile importance is also considerable. The manufacturing establishments, the machinery of which is all driven by water power, are 2 woolen factories, 5 large flour mills, a steam engine factory, a blast furnace, a mineral paint mill, a card manufactory, and an extensive stove manufactory. The town is 400 feet above the lake, being the most elevated ground on the line of the canal between Lake Erie and the Ohio river. In the vicinity of the town immense beds of Ohio mineral paint are found, and exported to every part of the country. In 1850 its population numbered 3,266, at present it exceeds 5,000.

AKSAI, a river of Circassia, which takes its rise in the N. E. slopes of the Caucasus, and after a course of 120 miles empties into the Terek.—Also, a village on the right bank of this river, 35 miles S. W. of Kizliar.

AKSHEHR, or "the white city," is a city of Asiatic Turkey, in the pashalic of Karamania, 10 miles S. of the Salt lake of Aksher, and 65 miles N. W. of Konieh. It is the ancient *Philomelion* of Strabo, and contains about 1,500 dwellings.

AKSOO, AKSU, or AKSU. I. A town of 6,000 inhabitants, in Chinese Toorkistan, situated in lat. 41° 7' N. long. 79° E., on a river S. of the Thian Shan mountains, and 250 miles N. E. of Yarkund. Being the military head-quarters of this part of the kingdom, a garrison of 3,000 Chinese soldiers is maintained. The people manufacture woollen stuffs, for which, and its jasper, it is resorted to by caravans from all parts of Central Asia. II. A small town of Asiatic Turkey, 18 miles E. by S. from Brusa. III. The name of several Asiatic rivers, the principal of which flows through Chinese Toorkistan, and is either an affluent of the Irtysh or Hoang-ho.

ALABAMA, a word of Indian origin, signifying "here we rest," is the name of one of the southern states of the American union. It has an area of 50,722 square miles, and is situated between 30° 10' and 35° N. latitude, and between 85° and 88° 30' W. longitude. Alabama is bounded on the north by the state of Tennessee, on the east by the states of Georgia and Florida, on the south by Florida and the gulf of Mexico, and on the west by the state of Mississippi. The state is divided into two districts and 52 counties, of which the following 18 form northern Alabama, viz.: Benton, Blount, Cherokee, DeKalb, Fayette, Franklin, Hancock, Jackson, Jefferson, Lauderdale, Lawrence, Limestone, Madison, Marion, Marshall, Morgan, St. Clair, and Walker; and the 34 following form southern Alabama, viz.: Autauga, Baldwin, Barbour, Bibb, Butler, Chambers, Choctaw, Clark, Coffee, Conecuh, Coosa, Covington, Dale, Dallas, Greene, Henry, Lowndes, Macon, Marengo, Mobile, Monroe, Montgomery, Perry, Pickens, Pike, Randolph, Russell, Shelby, Sumpter, Talladega, Tallapoosa, Tuscaloosa, Washington, and Wilcox.—Mobile, on the Mobile river, near where it empties into the bay of the same name, is the chief commercial mart

and largest city in the state. Mobile is one of the most important ports on the Gulf of Mexico, being the natural outlet for southern Alabama and south-eastern Mississippi, its commerce is considerable. New Orleans alone exports more cotton from the United States than Mobile. Montgomery, on the Alabama river, the capital of the state, is the second city in Alabama. The other towns of importance are Tuscaloosa, formerly the capital, Wetumpka, Huntsville, Marion, Talladega, Florence, Athens, and Jacksonville, with populations ranging from 1,000 to 3,500. Among the towns of less note, with populations under 1,000, are, Batesville, Carrollton, Uniontown, Pickensville, Somerville, Blakeley, Decatur, Eufala, Tuscumbia, Claiborne, &c.—The population of the State in 1855 was 841,704, of whom 484,456 were whites, 874,782 slaves, and 2,466 free colored. Of the white males, 140,077 were under 21 years of age, and 97,385 over 21. Of the females, 185,423 were under 21, and 91,573 over 21. There were 464 insane persons in the State. The following table will show the number of population at each census since the admission of the State into the union.

Census.	Whites.	Fr. colored.	Slaves.	Total.
1820	85,451	571	41,379	127,901
1830	190,408	1,573	117,549	309,530
1840	336,186	2,089	253,596	590,753
1850	428,514	2,365	349,844	771,693
1855	484,456	2,466	874,782	841,704

Of the 428,779 free population in 1850, only 236,332 were natives of Alabama, 188,918 of other states of the union, of whom 58,997 were born in Georgia; 48,663 in South Carolina; 28,521 in North Carolina; 10,387 in Virginia; 2,852 in Mississippi; 22,541 in Tennessee; 2,694 in Kentucky, and 9,258 in other states of the union. Of the 7,688 inhabitants of foreign birth, 3,689, nearly half, were born in Ireland; 941 in England; 584 in Scotland; 1,068 in Germany; 508 in France; and the remainder in other countries. The leading pursuits of the free male population were as follows: farmers, 66,610; laborers, 7,381; merchants, 2,468; students, 2,369; clerks, 2,156; carpenters, 1,976; planters, 1,906; overseers, 1,849; black and white smiths, 1,292; physicians, 1,364; teachers, 1,109; engineers, 154; clergymen, 702; lawyers, 570; boatmen, 816; mariners, 395; wheelwrights, 396; masons, 388; cabinet and chair makers, 287; shoemakers, 156; shoemakers, 587; grocers, 230; innkeepers, 117; millers, 373; millwrights, 146; painters and glaziers, 196; printers, 174; tailors, 396. The small exhibit of mechanics and laborers in this state is accounted for, from the fact that nearly all the labor is performed by slaves, who are not taken into this account. There were 296 blind; 210 deaf and dumb; 863 public paupers; 238 insane, and 476 idiotic.—The principal rivers of Alabama are the Mobile, Alabama, Tombigbee, Chattahoochee, and Tennessee. The latter comes in at the north-east corner of the state, and taking a circular sweep southward goes out at the north-west corner, and empties into the Ohio at Paducah, Ky.

With the exception of the Tennessee and its tributaries, the rivers of this state flow southward into the gulf of Mexico. The great river of the state is the Mobile, which is formed by the confluence of the Alabama and Tombigbee about 50 miles above Mobile bay, into which it empties at the city of Mobile. The Tombigbee rises in north-eastern Mississippi, and is navigable for light draught steamers to Columbus, a distance of about 800 miles, and for flat-boats some 125 miles farther to near its source. The Black Warrior, a branch of the Tombigbee, has its source in northern Alabama, empties near Demopolis, and is navigable for steamers to Tuscaloosa, a distance of 285 miles from Mobile. The Alabama, which is the eastern branch of the Mobile, is navigable to Montgomery, a distance of about 800 miles, though navigation is frequently interrupted during the dry season. The Chattahoochee, a large river rising in Georgia and emptying into Appalachicola bay, forms the eastern boundary of Alabama for more than 100 miles. It is about 500 miles in length and navigable to the falls, at Columbus, Georgia, 800 miles above its mouth. Among the smaller rivers are the Conecuh, emptying into the Escambia; the Perdido, emptying into Perdido bay; and the Choctawhatchee, emptying into the bay of the same name. Alabama has only about 60 miles of sea coast, extending from Perdido to the western line of the state, a large portion of the southern front of the state being cut off from the gulf by an intervening strip of the state of Florida. Mobile bay, which is the great outlet to the navigable waters of the state, is the largest and finest on the gulf, being 30 miles in length and varying from 8 to 18 miles in breadth, with 15 feet of water at the main entrance at low tide; but the channel for 10 miles below the city of Mobile is not more than 8 or 9 feet deep at low tide. Perdido bay is of slight importance. The Alleghany mountains exhaust themselves in north-eastern Alabama, rendering that portion of the state quite uneven and broken, though the elevation is nowhere very great. The range extends west with a slight bend to the south, and forms the dividing line between the waters of the Tennessee and other rivers of Alabama, all of which ultimately flow southward into the gulf of Mexico.—From this elevated range the face of the country slopes to the south, and is somewhat uneven as far as the centre of the state, where we find rolling prairies, pine barrens, and very fertile alluvial river bottoms. The extreme southern portion of the state is very flat, and but slightly elevated above the level of the gulf of Mexico. In the central portions of the state, there are extensive beds of iron ore and bituminous coal. Among the other minerals in this state is galena, which is found in the limestone formations of Benton and other counties; also manganese, which also occurs in the limestone formations. Red and other ochres are also found in considerable quantities. Black and variegated marbles abound in Talladega

county and on the Cahawba river; also in Coosa county, where granite of a superior quality for statuary is also found in great abundance. Gold has been found in the north-eastern part of the state, but not in sufficient quantities to render the mining of it profitable. The prevailing rock formation is limestone. The soil of the state is various, but mainly productive. In the southern part of the state there are considerable tracts of sandy barrens, but the river bottoms are remarkably fertile, and some of them produce good crops of sugar-cane. Some portions of the highlands in the north are not worth cultivating, while by far the greater portion is very excellent land, having a productive soil of variable depth, resting on a limestone bed. The forest trees found in the middle and northern portions of the state are oak, hickory, cedar, poplar, chestnut, pine, mulberry, post-oak, and elm, the latter growing on the low lands skirting the streams. Groves of cedar of great height abound in the cane-brakes of Marengo and Greene counties. Below 88° N. lat. commences the long-moss region. This moss, which hangs in festoons from the forest trees so extensively as to darken the wood, is very much used for mattresses.—The climate is healthy, except on the low river bottoms, where the prevailing diseases are intermittent, congestive, and bilious fevers; congestive fevers being the most fatal. Mobile, in its earlier history, was several times severely ravaged by yellow fever. In the elevated portions of the country the climate is quite delightful, the heat of summer being materially mitigated by the gulf breezes. During summer the mercury ranges from 104° to 60° F.; in November and the winter months from 82° to 18°, and in spring 93° to 22°. The mean temperature of the state is about 68°, or perhaps something less, and the mercury seldom rises above 95°. June is the hottest month in the year. Very little snow falls, and the rivers are never frozen over, though stagnant water is sometimes temporarily covered with a thin coating of ice. In the lower portions of the country, there is almost a total lack of good water, while that found in the higher regions is very good. In many parts of the state the inhabitants procure their water from Artesian wells, which not unfrequently reach a depth of 1,000 feet, and some of them throw up water in sufficient quantity to turn mills and other machinery. Fruit trees blossom from the 1st of February to the 1st of March, according to the elevation.—The chief productions of the state are cotton and Indian corn, though other grains are produced to some extent, as are also on the bottom lands in the extreme south sugar-cane and rice. Tobacco is also grown to a limited extent. According to the last U. S. census, 1850, there were 4,485,614 acres of land under cultivation, divided into 41,964 farms, producing 225,771,600 lbs. of cotton; 28,754,048 bushels of Indian corn; 294,064 of wheat; 2,965,697 of oats; 892,701 of beans and peas; 5,475,204 of sweet potatoes,

261,482 of Irish do.; 8,242,000 lbs. of sugar; 88,428 gallons of molasses; 4,008,811 lbs. butter; 2,811,252 of rice; 164,990 of tobacco; 657,118 of wool; 897,021 of honey and beeswax; 82,685 tons of hay; \$21,690,122 worth of live stock; \$4,823,485 worth of slaughtered animals; \$84,821 worth of market goods, and \$1,934,120 worth of home made manufactures. The farming implements of the state were valued at \$5,125,668. Alabama is eminently an agricultural state, manufacturing being carried on to a very limited extent. According to the censuses already referred to, there were in 1850, 1,022 manufacturing establishments in the state, each producing annually \$500 or upward. Of these 12 were cotton factories, employing only 786 hands, and producing 8,081,000 yards of stuff and 790,000 lbs. of yarn, all valued at \$382,200; 14 furnaces, forges, &c., producing castings, pig and wrought iron, valued at \$280,876; 149 tanneries, employing an aggregate capital of \$200,570, and producing leather valued at \$385,911.—Among the natural curiosities which invite the attention of the tourist, are, a natural bridge in Walker county, said to compare favorably with the famous natural bridge in Virginia; Bladen and Blount springs, which are the resorts of health and pleasure seekers, and the sulphur springs of Talladega county. The remains of various mounds and roads have been found in different parts of the state, of which the Indians formerly occupying the country, but since emigrated to the west of the Mississippi, furnish no traditions. A stream of water issues from a large fissure in the limestone rocks at Tusculum, which is said to discharge 125 hhds. of water per minute, forming a considerable river which empties into the Tennessee. The north-east corner of the state abounds in wild, grand, and picturesque scenery. The "suck," a sort of maelstrom in the Tennessee river, and Paint Rock, a very high bluff with figures representing a man's face, are objects of much curiosity.—Alabama has large facilities for commerce, both foreign and internal. Her numerous rivers furnish more than 1,500 miles of steamboat navigation, finding an outlet for her productions, as well as those of portions of the adjoining states of Georgia and Mississippi, through the magnificent bay of Mobile; beside the Chatahoochee (called the Appalachicola below its junction with the Flint, at the S.W. corner of Georgia), which washes the eastern border of Alabama for half the length of the state, and running through Florida empties into Appalachicola bay; the Conecuh, called the Escambia after crossing the Florida line, emptying into Pensacola harbor; and the Perdido, which empties into the bay of the same name. The foreign commerce of Alabama all centres at Mobile, where cotton is, of course, the chief article of export; though considerable quantities of sawed lumber and staves are shipped thence to Cuba, and cedar railroad ties to the northern states. The exports of domestic products from

Alabama for 1856, were \$23,726,218, of which \$14,269,896 was taken in American, and \$9,456,319 in foreign bottoms. The imports for the same period were \$798,514, of which \$607,962 came in American, and \$181,552 in foreign vessels. The tonnage entering Mobile for 1856, was as follows:

	No.	Tons.	Men.	Boys.	Total.
Am. vessels,	180	79,879	2,019	183	2,182
Foreign do.,	98	89,370	2,393	204	2,597
Total,	278	169,249	4,412	387	4,749

The following was the amount of tonnage cleared in the same time:

	No.	Tons.	Men.	Boys.	Total.
Am. vessels,	192	122,409	2,953	212	3,165
Foreign do.,	101	90,509	2,432	207	2,639
Total,	293	212,918	5,385	419	5,804

Of the clearances, 63 were for England; 40 for France; 47 for Cuba, and 133 for other foreign ports. Twelve vessels, whose aggregate tonnage was 26,348, were built in the state during the year.—There are at this time (1857) nearly 500 miles of railroad in operation in Alabama, comprising the following lines: 1. The Alabama and Tennessee Rivers road, finished from Selma to Columbiana, 73 miles. 2. The Alabama and Mississippi, open from Selma to Uniontown, 20 miles. 3. The Memphis and Charleston, from Memphis, Tenn., to Stevenson, Ala., 185 miles in the latter state. 4. The Montgomery and West Point (Ga.), 87½ miles, with a branch to Columbus, Ga., 28½ miles. 5. The Mobile and Girard, finished 40 miles from Girard, opposite Columbus, Ga. 6. The Mobile and Ohio, 62 miles to the state line of Mississippi. Of these roads, the first is in progress to Gadsden, 167½ miles, and will probably be extended to Cleveland, Tenn., to connect with the East Tennessee and the Virginia roads. The second is being extended to the state line of Mississippi, to connect with roads completed and in progress across that state to Vicksburg, and thence to Shreveport, near the western boundary of Louisiana; from which point a railroad across Texas to the Pacific is projected. The third connects with lines to the seaboard of Virginia, South Carolina, and Georgia. The fourth connects Montgomery, the capital of the state, with lines from West Point to Charleston, S. C., and from Columbus to Savannah, Ga. The fifth will connect Mobile with the same system of roads as the preceding. The last is open to Columbus Junction, Miss., 219 miles from Mobile, and is in course of construction thence to Cairo, Ill., to connect with the Illinois Central road; and these two roads will form, when united, the longest continuous line of railroad in the world. In addition to the above, grants of land have been made by Congress for the construction of a railroad from Montgomery to Pensacola, Fla., and of a central line to connect Selma with Nashville, Tenn. There are several other roads in progress or projected, intended to form a very complete system, and to connect every part of Alabama with all the important lines of the country.—Among the public insti-

tutions in the state are a penitentiary at Wetumpka, a lunatic asylum at Tuscaloosa, an asylum for the blind and a U. S. naval hospital at Mobile. An appropriation has been made for an asylum for the deaf mutes. The state contains 5 banks of discount and deposit, 2 of which are at Mobile, 2 at Montgomery, and 1 at Selma, with branches. There are 56 college, school, and other public libraries in the state, containing altogether something like 20,000 volumes. Among the finest buildings in the state are those of the Alabama university at Tuscaloosa, which cost \$150,000, and has an annual income of \$15,000.—The state, in 1855, contained 17 colleges, 191 academies, and 1,098 common schools. The number of children attending the public schools was 40,283, and the number of white children in the state between the ages of 8 and 16 years was 93,443; of the white adult population over 20 years of age, one in every fifteen is unable to read and write. The state appropriates about \$50,000 annually (the income from the proceeds of school lands granted by congress) to the support of the common schools, and about \$5,000 to the academies. The public or free school system went into operation in 1854.—The leading religious denominations are Methodists and Baptists. The former have 581 churches with accommodations for 150,675 worshippers, and possess church property worth \$276,439. The latter 505 churches, worth \$227,297, with accommodations for 158,880. The Presbyterians have 150 churches, valued at \$222,775, and accommodations for 58,705. The Episcopalians have 16 churches valued at \$76,800, with seats for 6,220. The Roman Catholics have 5 churches, with seats for 5,200, and church property worth \$800,000. There are other denominations in the state of less importance as to numbers.—In 1850, 60 newspapers and periodicals were published in the state, of which 6 were daily, 5 tri-weekly, 48 weekly, and 1 semi-monthly, with an aggregate circulation of 84,597, and an average circulation of 692. The whole number of papers printed during the year was 2,662,741.—By the constitution of Alabama, the government is divided into 3 distinct branches, legislative, executive, and judicial. The legislative power is vested in a senate and house of representatives, and styled "the General Assembly of the State of Alabama." The members of the house are appointed among the different counties in proportion to the white population, and the number cannot exceed 100 nor fall short of 60. The present number is 100. They are elected on the 1st Monday of August every other year. The senators are elected for 4 years, one-half being chosen every 2 years, and their number cannot be more than one-third nor less than one-fourth that of the representatives. The present number is 33. The legislature meets biennially at Montgomery on the 2d Monday of November. The executive power is vested in a governor who is elected for a term of 2 years, and is

ineligible for more than 4 years out of 6. He is elected on the same day with the members of the legislature. Every white male citizen 21 years of age, who shall have resided in the state one year, and for the last 8 months in the county, city, or town where he offers his vote, is entitled to suffrage. The judicial power is vested in a supreme court of five justices, with appellate jurisdiction only; a court of chancery consisting of three chancellors, the state being divided into 8 chancery districts; in circuit courts, each held by one judge; of which there are 8; a city court for Mobile, and courts of probate. The chancellors and judges of the supreme courts are chosen by a joint vote of the legislature for 6 years, and the others are elected by the people. The judges may be removed by impeachment, or by the governor on the address of two-thirds of the legislature. The laws of the state are somewhat remarkable for the severity of their penalties. Beside the usual punishment of fine, imprisonment, and death by hanging, are those of "standing in the public pillory, branding, and whipping." Murder, treason, rape, man-stealing, slave-stealing, arson, robbery, burglary, counterfeiting, forgery, and killing in a duel, are punishable with death. The consequence of this severity is that many go unpunished from the unwillingness of juries to convict, or are pardoned by the governor. Members of the assembly and other public officers and attorneys at law, are obliged to take the anti-duelling oath. Alabama has 7 representatives in the popular branch of congress, and, like each of the other states, 2 senators.—The territory, now comprising the state of Alabama, was originally a part of Georgia; but in 1798 the country, now included in the states of Alabama and Mississippi, was organized as a territory, called Mississippi. At this time Florida, which then belonged to Spain, extended to the French possessions in Louisiana from a parallel of 81° N. lat. to the gulf of Mexico, cutting off Mississippi territory from the gulf-coast entirely. During the war with Great Britain in 1812, as a precautionary measure, that part of Florida between the Perdido and Pearl rivers was occupied by U. S. troops and finally annexed to Mississippi territory. During 1813 and 1814 the Creek Indians, a powerful tribe inhabiting what is now Alabama, became very troublesome, and finally assaulted and captured Fort Mimms, on the Alabama river, near the mouth of the Tombigbee, slaughtering indiscriminately 880 whites who had taken refuge there. Upon this General Jackson marched to the relief of the settlers with a strong force from Tennessee, and with the assistance of the troops from Georgia and Mississippi territory, and a considerable force of friendly Cherokees and Choctaws, reduced the Creeks to complete subjection after a series of bloody encounters, in which the Creek loss in killed was 1,617, and Jackson's was 100 killed, 400 wounded. The war was terminated by the famous battle of Horse Shoe Bend on

the Tallapoosa, in which about 600 Creeks were slaughtered, and in which Jackson's loss was only 26 killed and 106 wounded. The warlike spirit of the tribe was completely broken, and they signed a treaty of peace dictated by General Jackson, in which they surrendered three-fourths of their vast and fertile territory. The country was subsequently rapidly settled by the whites, and in 1817 the western portion was admitted into the union as the state of Mississippi, while the eastern part remained as the territory of Alabama till 1819, when it was also admitted as a state, having at that time 127,901 inhabitants, of whom 41,879, about one-third, were slaves. The slave population has since increased much more rapidly than the free, the proportion of slaves to the free population being, according to the census of 1855, as 239 to 289.

ALABAMA RIVER is formed by the union of the Coosa and Tallapoosa rivers, which unite not far from the city of Montgomery. It has a western course as far as Selma, after which it flows southwardly as far as the confluence with the Tombigbee, after which it is known as the Mobile. The river is navigable at all seasons almost to the mouth of the Coosa for boats of the largest size; the length of the river is nearly, if not quite, 800 miles. On its banks are some of the largest cotton plantations in the United States, and the lands are of great fertility and value.

ALABASTER. This name is frequently given to two different mineral substances—the one a sulphate of lime, a pure variety of gypsum, and the other a carbonate of lime, of the same chemical composition as most of the marbles. It was used with the same ambiguity by the ancient Greeks and Romans. The resemblance of the two substances is in their delicate white color and fine grain. Each is easily carved and wrought into ornamental forms, and is susceptible of a fine polish. They might well in ancient times have passed as varieties of the same substance—the gypseous alabaster being more delicate and softer to cut, and requiring much more care to polish—the calcareous alabaster more firm, and better adapted for the sculpture of larger figures. The latter was frequently obtained from the drippings of the water in limestone caves, which holds carbonate of lime in solution, and deposits it in evaporating in the form of stalactites and stalagmites. These by a little ingenuity were made to take the forms of the mould the waters dripped upon; or the natural stalagmites of the purest colors were selected, and then wrought into the desired figures.—The name alabaster is now properly limited to the gypseous variety. It is derived from the town Alabastron, the site of which is believed to have been between the Red sea and the Nile in Middle Egypt. Here the stone was extensively wrought into those boxes and pots for precious ointments and perfumes, of which mention is frequently made in the works of the old writers, sacred and pro-

fae. A white granular gypsum, pure and in sound blocks, is at this time quarried in Sienna, and in other places in Tuscany, and manufactured at Florence, Leghorn, Milan, and Volterra, into utensils similar to those used of old, as well as into vases, lamps, clock-stands, &c. They are exported from these places in considerable quantity to the United States.—The composition of this alabaster is 46.3 per cent. sulphuric acid, 32.9 per cent. lime, and 20.8 per cent. water. Its hardness is 1.5–2 of the mineralogical scale. It soon tarnishes on exposure to the air, and is also easily injured by dust and smoke. For this reason articles made of it should be kept under a glass cover.

ALABASTER, WILLIAM, an English divine, born in the county of Suffolk about 1567, died 1640. He was educated at Trinity college, Cambridge, and was chaplain to the earl of Essex in the expedition against Spain in 1596. While in that country, he joined the Roman Catholic church, but afterward returned to the communion of the church of England. He was appointed prebendary of St. Paul's at London, and was subsequently made rector of Therfield in Hertfordshire. Alabaster was a good Hebrew scholar, but wasted much of his time in cabalistic researches. He wrote some poetry, and his "Roxana," a Latin tragedy, is highly praised by Dr. Johnson.

ALABAT, one of the lesser Philippines, situated on the E. coast of Luzon, in lat. 14° N. long. 122° 18' E., the inhabitants of which are said to be savages.

ALACHUA, a county in Florida, in the N. W. part of the peninsula, having an area of 1,000 square miles. It is bounded on the N. by the Santa Fe river, and on the W. by the Suwanee. Within its limits Orange lake is partly included. It also contains several ponds. The surface is rolling prairie, and the soil fertile. In 1850, the products were 64,724 bushels of corn, 28,063 of sweet potatoes, 561 bales of cotton, 17,935 lbs. of rice, 5,558 gallons of molasses. Newmansville is the capital. It is named after a savanna in the county north of Orange, and contains a population of 2,524, including one free person of color, and 906 slaves.

ALACOQUE, MARGUERITE MARIE, a French nun of distinguished devotion, to whom the festival of the Sacred Heart of Jesus owes its origin. She was born at Lanthecour, diocese of Autun, July 12, 1647, and died Oct. 17, 1690. She took the name Marie out of gratitude to the Virgin Mary, who cured her of a disease when a child. Her biographers also say that she had the gift of miracles, of prophecy, of revelations, and direct intercourse with God and his angels. She predicted the day of her own death, and experienced ineffable pleasure while engraving the name of Jesus Christ on her bosom with a blunt penknife.

ALACRANE, a group of islands in the gulf of Mexico, situated about 70 miles N. of Yucatan. These islands are on a reef running N. and S. 15 miles, and 12 miles wide.

ALADAGH, a lofty mountain-chain in Asiatic Turkey, on the northerly side of which the eastern Euphrates takes its rise. It is situated on the N. edge of the basin of lake Van, between lat. 30° and 40° N. and long. 30° and 44° E., and forms part of the watershed between the Caspian sea and the Persian gulf. Also, a range in Anatolia, to the N. W. of Angora, extending between the Ischik Dag on the N. E., and the Sangarius valley on the S. and W.

ALADAN, a little cluster of islets, known as the Aldine Islands, in the Bay of Bengal, and forming part of the Mergui Archipelago.

ALAGHEZ, a volcano and mountain range on the north side of the basin of Armenia, lying on the great plain of the Araxes. The loftiest summit reaches to an altitude of 13,628 feet above the sea level.

ALAGOAS, a province of Brazil, on the Atlantic coast, which up to 1840 belonged to the province of Pernambuco. It is situated between 9° and 10° S. latitude, and 36° and 38° 30' W. longitude. In extent it is 150 miles long by about 60 in width, and contains an area of about 9,000 square miles. Two-thirds of its surface is covered with mountains, at the base of which the land is very fertile. The tall timber trees on the mountains afford large quantities of lumber for export, and in the valleys cotton and sugar are extensively cultivated. Tobacco, which was formerly a staple, since the abolition of the African slave trade, has ceased to be cultivated to any extent. The climate is warm and humid, and in the rainy season oppressive. The principal river is the San Francisco, which enters Alagoas at the western extremity, at the cataract of Paulo Afonso, where it descends perpendicularly 50 feet. Thence for 50 miles it runs over a rocky bed through steep cliffs to Caninda, where it becomes navigable, and continues so to its mouth. Tropical fruits of all kinds are grown in abundance, and dragon's blood, mastic, ipecacuanha, copaiba, caoutchouc, and other drugs, are obtained in the woods. The population is said to number 200,000, but they are very unequally distributed, $\frac{1}{10}$ of them occupying the lowlands, or about one-third of the province. Negro slaves compose about one-half of the population. Some of the native tribes still live in the mountains, and subsist by the chase. The principal occupation of the people is agriculture; common cotton cloth is made in the families; but most of the manufactured goods are imported. Two senators and 5 representatives are returned by this province to the Brazilian General Assembly.—Alagoas, the capital, has a population of 12,000, and several convents and grammar schools.

ALAGON, a river in Spain, about 120 miles long, which is noted for its large, fine-flavored trout. It falls into the Tagus about 2 miles N. E. of Alcantara.

ALAIN DE LILLE, in Latin ALANUS DE INSULIS, born 1114, died about 1208. He was called the Universal Doctor, and was one of

the most profound savants of the 12th century. He was a philosopher, physician, theologian, poet, and historian. His place of retreat was the monastery of Oiteaux. As is the case with so many other celebrities from Homer to St. Patrick, five nations or provinces dispute the honor of his birth, Germany, Scotland, Spain, Sicily, and Flanders. He himself says he came from Lille in Flanders.

ALAIS, an *arrondissement* in the department of the Gard in France, extending over 529 square miles, and containing 100,000 inhabitants, and ninety-five communes. The chief city of the *arrondissement* is of the same name. It contains 18,983 inhabitants, who are employed in various manufactures.

ALAIX, a Spanish general of French origin. After the death of Ferdinand VII., he joined the party of Queen Christine, and was commander of a division. In September, 1808, he was wounded, and 2 months afterwards was appointed minister of war. He retained his post until 1809, and died in Madrid, Oct. 1803.

ALAJAHISSAR, a town of European Turkey, on the right bank of the Morava, about 95 miles S. of Semendria. It is the capital of the *sanjak* of Kruschovatz, in the province of Servia.

ALAJUELA, a city in the state of Costa Rica, Central America, situated midway between Cartago and the west coast. It is a place of considerable commercial importance, and is connected with the commodious port of Puntas Arenas on the Gulf of Nicoya, by an excellent mule road. Population, including suburbs, 10,000.

ALAKANANDA, a little stream which, rising in the Himalaya mountains, joins the Baghirathi at Devaprayaga, and forms the principal source of the Ganges.

ALAMAN, LUCA, a Mexican statesman and prominent leader of the monarchical party, born in the latter part of the 18th century, died June 2, 1858. He was a member of the cabinet under Bustamante in 1829, but his reactionary tendencies found no congenial elements to act upon, until March 17, 1853, when Santa Anna, on again coming into power, lent a willing ear to the suggestions of Alaman, upon whom he conferred the office of minister for foreign affairs. The new administration found the country in the most distracted condition. The people of Zacatecas, Durango, and Nuevo Leon, were in constant fear of being butchered by the neighboring Indians. The finances were in a wretched state of embarrassment; adventurers of the worst description and highway robbers made their appearance in every direction, and the government was unable to afford protection to the inhabitants. The relations with the United States daily assumed more formidable features. All political ties were torn asunder. The commercial unity was equally destroyed, and every individual state promulgated a separate tariff. The remedies suggested by Alaman to Santa Anna, with

a view of infusing a spirit of law and order into this universal condition of chaos and anarchy, were of a singular character. He proposed the abolition of the liberty of the press, and severe punishments for the infraction of the new law on this subject, which were actually proclaimed by the president, April 25, 1853. Alaman's next remedy was the restoration of the power and of the confiscated property of the Jesuits. This advice was also subsequently followed by Santa Anna, and a decree to that effect issued by him Sept. 19 of the same year. A regular recruiting system was introduced, and the army re-organized. Onerous taxes were imposed upon the impoverished population. A law was passed for the purpose of cashiering all Mexican officers who had voluntarily surrendered to the American government. The principal public journals of the capital were suppressed, and despotism was the order of the day. Alaman was a participant in most of these proceedings, which, far from allaying, tended only still more to increase the general excitement, and in fact paved the way for the revolution which in 1855 compelled Santa Anna to relinquish the reins of government. But his foreign minister was relieved by his death, which took place 2 months previous to this event, from witnessing the fatal consequences of his policy. Alaman had no faith in free institutions. In his opinion, an absolute monarchy was the only safeguard for Mexico against troubles from within and attacks from abroad. He was the author of a history of Mexico.

ALAMAN, SIGAARD D', the favorite of Raymond VII., count of Toulouse, and prime minister of that province for a long period, died June 3, 1275. He was of an ancient family, and in 1242, when Raymond was about departing for the court of the king of France, was appointed by the latter vice-governor of all his dominions on the western side of the Rhone. He continued in favor with Raymond until the death of that prince, in 1249, and was then appointed one of his executors, and governor of all his dominions, until his daughter should be able to take possession of them. This lady had married Alphonse of France, and Alaman was allowed to hold his office and govern the country as lieutenant of the Count Alphonse. But he was suspected of diverting the revenues of the state to his own private advantage, and was summoned before a court on this charge, when Philip the Bold took possession of the province. His death, occurring just after he had received this summons, alone prevented his condemnation. Alaman left great wealth to an only son, who died without issue, 1279.

ALAMANCE, a county in the northern part of North Carolina, having an area of about 500 square miles. The river Haw, a branch of Cape Fear, runs through the centre of the county, and through the western part, Alamance creek, from which it is named, flows into the Haw. The soil is fruitful, and the sur-

face undulating. The staples are wheat, corn, oats, hay, cotton, and tobacco. In 1850, the products of the county amounted to 419,180 bushels of corn, 82,887 of wheat, 108,265 of oats, 3,783 tons of hay, 14,650 lbs. of tobacco, 121 bales of cotton, and 80,051 lbs. of butter. It had in the same year 5 cotton factories, an iron foundry, 30 grist and flour-mills, and 15 churches. The North Carolina railroad from Goldsboro' through Raleigh and Salisbury to Charlotte, passes through this county. There is also a good plank-road from Graham, the county seat, to the Deep river coal mines. Until 1848, this county was part of the county of Orange. It has a population of 11,444, of which 7,921 are free whites, 827 free colored, and 3,196 slaves.

ALAMANNI, or ALEMANNI, LUIGI, an Italian poet, born at Florence in 1495, died in 1556. His father was devoted to the party of the Medici. Suspected of conspiring against the life of Cardinal Julius, who was governing Florence in the name of the pope, he fled first to Venice, and, after the accession of Cardinal Julius to the papal throne under the name of Clement VII., to France. Francis I. had a high opinion of him, and took him into his service. After the peace of Crespì, in 1544, the French king appointed the Italian refugee his ambassador at the court of Charles V. He retained the good will of the successor of Francis, and died at Amboise. He left many poems, satires, fables, and other light literature.

ALAMEDA, a new county in the west central part of California, organized since 1852. It was formed out of portions of the counties of Contra Costa and Santa Clara. Its area is about 820 square miles.

ALAMO, a fort in Bexar county, Texas, near the north-east part of the town of San Antonio, and on the left bank of the river of that name. It was called by the Mexicans "the Alamo," a Spanish word meaning poplar. It probably derived its name from the fact of a grove of these trees having at one period stood near it. The fort was an oblong structure, about an acre in extent, surrounded by a wall 8 or 10 feet high and 3 feet thick. Its name will long be remembered by Texans, associated as it is with occurrences rivalling in barbarity the savage deeds of the middle ages, or the fierce cruelties of the American Indians. The records of the "massacre of the Alamo" are scanty, and are derived from letters written during the progress of the siege, by the officers of both sides, from a journal kept by Gen. Almonte, which was afterward found on the scene of battle, and the evidence of the one or two persons who survived. From these sources we learn that on Feb. 23, 1836, the Mexican forces, from 1,500 to 2,000 strong, commanded by Santa Anna in person, aided by Generals Almonte, Cos, Sesma, and Castrillon, appeared before Bexar. The Texans, consisting of about 140 men, were commanded by Col. Wm. Barrett Travis, with Col. David Crockett and Col.

Bowie under him. Seeing the utter hopelessness of attempting to resist so overwhelming a force in the open field, they retired into the Alamo, where they raised the national flag, formed of 18 stripes, red and white alternately, on a blue ground, with a large white star of 5 points in the centre, and between the points the word Texas. The Mexicans, having taken possession of the town, proceeded to fortify themselves, erecting batteries on both sides of the river, directed against the fort. A messenger was now sent in, demanding the Texans to surrender at discretion, or all would be put to the sword. To this, a cannon-shot was the only reply. The Mexicans now commenced bombarding the fort from 5 different batteries, and continued without cessation for 24 hours. During this time, over 200 shells were discharged into the fort, yet not a man was injured, while the Texan sharpshooters, standing upon the ramparts, were able to pick off man after man of the enemy. The walls of the fort were found to be quite ball-proof, and as the Texans were constantly engaged in strengthening them with earth, they were able to withstand all the force of the Mexican artillery. Several assaults were now made upon the fort, but in every instance the Mexicans were repulsed with loss. Col. Travis repeatedly sent couriers to San Felipe, asking for assistance, but without success. By March 8, scarcity of provisions, combined with constant watching, had undermined the health of the men, without, however, affecting their spirits. Col. Travis harangued the little garrison, exhorting them to fight to the last, and die rather than surrender. Before daybreak on the 6th, a combined attack was made upon the fort by the whole Mexican force. Twice assaulting, they were twice driven back, with severe loss. The Texans, unable to load, in the hand-to-hand fight which now ensued, clubbed their rifles and fought with desperation until but 6 of their band were to be found alive. These, including Col. Crockett, surrendered to Castrillon, under promise of his protection, but being taken before Santa Anna, they were by his orders instantly cut to pieces. Col. Crockett fell with a dozen swords sheathed in his breast. Col. Bowie, ill in bed, was then shot, after having killed several of his assailants. Major Evans, another gallant officer, was shot while in the act of firing the powder magazine. The bodies of the slain were now collected together in the centre of the Alamo, and after being horribly mutilated (in which act, it is said, Santa Anna and his generals joined), they were burned. So ended the massacre of the Alamo, an act which, more than any thing else, led to the final independence of Texas. It roused a fire in the breasts of the hardy Texans, which resulted in the battle of San Jacinto, the defeat of the whole Mexican army, and the capture of Santa Anna himself, with his best generals. At this battle the Texans, with the war-cry of "Remember the Alamo," carried all before them.

ALAMOS, a town in the Mexican province of Sonora, situated 140 miles N. W. of Cinaloa. The district is famous for its silver mines, in which between 3,000 and 4,000 of the townspeople are employed. The town is built of stone or brick, overlaid with stucco, and the streets are tolerably well paved. Population, about 10,000.

ALAMOS DE BABRIENTOS, **BALTASAR**, a philologist, born in the middle of the 16th century at Medina-del-Campo, in Spain. He became distinguished by a translation of Tacitus, which he wrote while in prison, where, owing to his friendship for the luckless Antonio Perez, secretary of Philip II., he remained for nearly 12 years. After having recovered his liberty, he obtained, through the influence of the duke de Lerma and the count de Olivarez, various important charges at the court. He died at the age of 85.

ALAMUNDAR, a king of the Saracens, who invaded Palestine A. D. 509, and put to death the hermits who lived in the desert. It is said that the miracles performed by the Christians worked upon his imagination, and created the wish to become a Christian. The Eutychians got hold of him, and endeavored to indoctrinate him with their views of the Saviour's nature. According to them, the divine as well as the human nature of Christ perished on the cross. Alamundar is said to have seen through their sophisms at once, and confounded their bishops by the following logical stratagem. He feigned to have received letters announcing the death of the archangel Michael, and asked the Eutychians what they thought of the news. They said it was impossible and absurd. "If an angel cannot die, how then can a God?" was the retort of the Saracen.

ALAN, **WILLIAM**, an English theologian and prelate, born in 1582 at Rossall in Lancashire, died at Rome, Oct. 6, 1594. His attachment to the Catholic church made him resolve to quit England forever, and take refuge in Flanders. There he conceived the idea of founding a college for English Catholics. Pope Gregory XIII. approved of the project, and helped to realize it. In 1587, Philip II. of Spain, then preparing his armada against England, demanded a cardinal's hat for Alan, which was granted by the pope. In 1588 he published his "Admonition to the Nobility and People of England." This book the Spaniards took on board their armada. Philip II. appointed Alan archbishop of Malines in 1591. The pope nevertheless retained him near his person until his death. He was buried in the chapel of the English college, which Gregory XIII. had founded at Rome.

ALAND ISLANDS, a group of about 200 rocky islets, of which 80 are inhabited, situated at the entrance of the Bothnian gulf, between lat. 59° and 60° 32' N. and long. 19° and 21° E. They belong to Russia, having been ceded by Sweden in 1809, and form a part of the government of Abo, in Finland. The population, about 15,000 in number, are of Swed-

ish descent, and are excellent sailors and fishermen. The rocks, covered with a thin soil, produce pines and birches, rye, barley, potatoes, hops, flax, and the inhabitants keep great numbers of cattle, and export cheese, butter, and hides; they also manufacture cloth for home use and for sails. The chief island is named Aland; its area is 28 square miles, its population 10,000; it has a good harbor on the W. side. All the harbors are more or less fortified; foremost among these was the island and harbor of Bomarsund, taken and blown up in 1854 by the allied fleets of England and France during their war against Russia. In 1714, the Russian admiral Apraxin won a decisive naval victory against the Swedes near the cliffs of Signilskar.

ALAND, **JOHN FORTESCUE**, Lord, an English lawyer, born March 7, 1670, died Dec. 19, 1746. He was a scion of the old family of Fortescue in Devonshire, but assumed the name of his wife, the daughter of Henry Aland of Waterford, in Ireland. In 1717 he became baron of the court of exchequer, and in 1718 was transferred to the bench of the common pleas. In the same year he was created an Irish peer. In 1714 he republished the treatise of his ancestor, Sir John Fortescue, upon the difference between an absolute and a constitutional monarchy. After his death, some abstracts of decided cases which he made in the course of his long career were published.

ALANI, a tribe often mixed with the various German invaders of the Roman world during the great migration of the nations of the north. Their origin is, however, uncertain, though they seem to have been of Scythian or Finnish stock. They originally dwelt in or about the Caucasian mountains, whence they extended toward the Don, at the same time that they made inroads into Armenia and Asia Minor. Vologosus, king of the Parthians, claimed the aid of the Emperor Vespasian against them. Arrian, the historian and the lieutenant of the Emperor Hadrian in Cappadocia, warred against them. They are mentioned as excellent horsemen and marksmen with the bow. At the time of Aurelian, they united with the Goths and invaded Asia Minor, but were expelled about the year 280 by the Emperor Probus. In or about 375, uniting with the Huns, they destroyed the great northern Gothic empire of Ermanrich, drove out the Goths from the region between the Don and the Danube, and joined the great movement of the northern tribes toward the south-west of Europe. Conjointly with the Suevi and the Vandals, in 406, they invaded and devastated Gallia. A body of the Alani who remained south of the river Loire, appeared in 451 as allies of Aëtius against Attila; and were subsequently destroyed by the Franks and the Visigoths. Another body of them marched in 409 into Spain, and were there overpowered in 418 by Wallia, king of the Visigoths, and driven into Lusitania, where their name disappeared. In 464, another

er body of Alani invaded northern Italy, but Ricimer expelled and destroyed them. The annals of the Byzantine empire also mention the Alani as devastating both the Slavic region on the Danube, and the Caucasus. But they have long since disappeared from historical or ethnographic records, except perhaps among the tribes of the Caucasus.

AL ARAF, in the Mohammedan theology, signifies the wall of separation between heaven and hell, and corresponds somewhat to the purgatory of the Latin church. Sitting astride of this wall are those whose good and evil deeds so exactly balance each other, that they deserve neither heaven nor hell, and those others who go to war without their parents' consent and fall in battle. These last are martyrs, and are therefore preserved from hell; but inasmuch as they have disobeyed their parents' commands, are not deemed worthy of heaven.

ALARCON, HERNANDO DE, a Spanish navigator of the 16th century, the particulars of whose life and death have not been preserved by his contemporaries. We owe to him the first certain knowledge concerning the configuration of the peninsula of California. California had previously been held to be an island. Alarcon set sail in the service of the Spanish court May 9, 1540. On the western coast of America he expected to make a junction with the expedition commanded by Coronado; but the two commanders missed each other. Alarcon left an inscription on a tree at the place where they should have met, which was discovered by a third Spanish navigator. The inscription was, "Alarcon came to this point; at the foot of the tree are buried letters." The Spaniards dug for them, and found them. They conveyed the intelligence that Alarcon, after having tarried there for some time, had returned to New Spain; that the supposed sea was a gulf—that he had sailed round the Marquis island, and that California was not an island, but a point of land jutting into the Pacific. The court of Spain seems to have consigned him to that lamentable neglect which was the fate of a greater navigator in their service than Alarcon. Alarcon returned to New Spain in 1541, and there drew up his maps and observations. His discoveries and those of Fernando de Ulloa were applied to such good use, that an eminent geographer has said, the map of California got up in the year 1541, differs hardly at all from that made in our own day.

ALARCON Y MENDOZA, JUAN RUIZ DE, a Spanish-American poet and dramatist, born about the end of the 16th century at Tashoo, an ancient province in Mexico, of a noble family, originally from the little Spanish town of Alarcon. In the dearth of biographical detail respecting him, modern times have been unable to form any clear idea of the poet's individuality. It is probable that he was sent at an early age to one of the universities of Old Spain; at any rate, we find him with a fixed employment in Spain, in 1622; and in

1628 he is named, *Relator del real consejo de las Indias*—an office which must have lifted him above that abject want which killed Cervantes and Camoens. In 1628, Alarcon published the first part of his dramas, and dedicated them to his Mæcenas, Don Felipe de Guzman. While he is affectionate and loyal to his young patron, the language which he addresses to the general public is, to say the least, peculiar. This is from his preface: "Yes! it is you I address, wild beast as you are. I have no need to appeal to the nobility; they speak of me more highly than I would dare to do. Here are my comedies; treat them according to your usual manner of treating such things, and not according to justice. These dramas of mine look upon you with contempt, and are not a whit afraid of you; they have passed through the perils of your forests, and now they can traverse the obscure haunts which you inhabit; if they displease you, I shall be rejoiced; it will be a proof to me that they are good. If you treat them with consideration, it will be because they are bad, and the money which they will cost you will console me for their having had the misfortune to meet with your approbation." In 1634, some splendid fêtes were to be celebrated at Madrid in honor of Philip IV., and a libretto for a private dramatic performance was needed. The competition of all the poets and dramatists was invited. Alarcon carried off the prize, but this success drew upon him the unbounded hatred of all his competitors, except Calderon. After this year we lose sight of him. His works were published in two successive parts at Madrid, 1628, and at Barcelona, 1634. Alarcon, in the preface to the second part, declaims against those publishers who have inserted his dramas in collections of another man's pieces. Corneille took the plot of his *Menteur* from *La verdad sospechosa* (suspicious truth) of our author. "The argument," says Corneille, "is in my opinion so ingenious and so well treated, that I have said many times that I would willingly give two of my best plays to have the merit of the invention of this. I have seen nothing equal to it either in the ancients or moderns." The same play seems to have been as suggestive to Molière as Miss Edgeworth's novels were to Walter Scott. "When it was performed," he says, "I had already a wish to write, though I was not decided on what subject: my ideas were confused, but this work fixed them." His plays still hold a respectable place in Spanish literature. His Castilian is very pure, his power over metre great, and his characters romantic and not extravagant.

ALARD, MARIE JOSEPH LOUIS, a French physician, born at Toulouse, April 1, 1779, died at Paris in 1850. In 1794 he was engaged in the French army of the Rhine, as a sub-assistant surgeon; left the army some years later, and received his degree of doctor of medicine in 1808. He was the friend of Bichat, Ouvier, Dumeril, Fouquier, Dupuytren, and Lacépède. The latter

being professor of natural history at the garden of plants in Paris, and one of the dignitaries of state, caused Alaric to be named chief physician to the educational establishment of the Legion of Honor, at St. Denis, in 1811, which place he kept until he died. In 1808 he published a volume in 8vo, on diseases of the ear; in 1806, a vol. on the history of elephantiasis amongst the Arabs. In 1827 he published 2 vols. in 8vo, on the nature and seat of diseases.

ALARIC, king of the Visigoths, of the lineage of the Balti, was the first who opened the road for the deluge of the northern barbarians, and led them into the heart of the Roman world. Previously to his reign, the Goths north of the Danube (mostly of the Arian creed) being pressed by the Huns, claimed the protection of the Roman Emperors, who allowed them to cross the Danube and establish themselves on its southern side in Moesia (modern Bulgaria) as paid allies of the empire. When Theodosius divided the empire between his two sons, Alaric, profiting by the weakness resulting from the division, in 395 invaded Thrace, Macedonia, Thessaly, Illyria, and then marched towards Constantinople. Rufinus, the lieutenant of the Emperor Arcadius, to save the capital from the barbarians, abandoned Greece to their inroads, and Athens was obliged to pay a ransom. Alaric entered the Peloponnesus, where he was encountered in Elis by Stilicon, the lieutenant of Honorius, the emperor of the west, and a powerful army. Stilicon tried to surround the Goths on the banks of the Peneus, but Alaric broke through his army, escaped with his plunder and prisoners to Illyria, concluded peace with Arcadius, and was made by him the commander of the last-named province in 396. From Illyria in 402, Alaric invaded Italy. Honorius shut himself up in Ravenna, while Alaric, marching through northern Italy toward Gaul, was met by Stilicon near Pollentia on the Tanarus, and obliged to retreat. He sustained a second more signal defeat near Verona, after which he returned to Illyria, and concluded a treaty with Honorius, undertaking to invade the eastern empire and join his army with that of Stilicon in Epirus. This project being afterward abandoned by Honorius, Alaric claimed a compensation for the cost of his armaments and march, and was promised 4,000 pounds of gold. Stilicon, who made the promise in the name of the emperor, being beheaded in 408, and the promise made by him broken, Alaric invaded Italy, invested Rome, and received as ransom from the city 5,000 pounds of gold and 30,000 pounds of silver. Further negotiations for peace having proved unsuccessful, Alaric for the second time laid siege to Rome. Hunger obliged the city to conclude an arrangement, and in compliance with the will of the conqueror the Roman senate elected as emperor the Roman general Attalus. Shortly afterward, being dissatisfied with the incapacity of his nominee, Alaric ordered him to

resign. Renewed negotiations with Honorius were again unsuccessful, pending which Alaric's army was treacherously attacked near Ravenna, and he undertook the siege of Rome for the third time. On 24th August, 410, he entered the city by storm, and it was plundered by the Goths for 3 days. After remaining there 6 days, Alaric marched out, intending to make the conquest of Sicily, but died soon after (410) in Cosenza. The Goths turned from its bed the stream of the Busento, to bury their chief there, with all his treasures. All the prisoners who performed the work of digging were killed, that the Romans might never be able to find the place where the remains of the king were deposited. The death of Alaric was a momentary relief to Italy and to the Roman world, but new hordes from the north soon came in to complete his work.

ALARM. To sound the alarm in the military art, means giving notice of a sudden attack by firing a musket or cannon. False alarms are frequently given in order to annoy and harass the enemy by keeping him under arms.

ALARM, an instrument to give notice by sound. In its most ordinary form it consists of a bell and a hammer, combined with an escapement that lets it free at the proper time, when a descending weight or a spring makes it strike the bell.—ALARMS against BURGLARS are of various forms. Some consist in an arrangement for firing a pistol, and are connected either with the lock or with the door. Some of them are so arranged as to shoot the thief at the same time that they wake up the inmates. An alarm for this purpose may always be put up at a moment's notice, by stretching a string across the hall, one end attached to the knob of a door and the other to the trigger of a pistol, or to some glass or brass vessel placed on the edge of a table or at the top of a flight of stairs, which will tumble down with a noise the moment the string is pulled by any one opening the door or crossing the hall.—ALARM-CLOCK, is a clock for sleeping-rooms, provided with an alarm that may be wound up, to strike at any appointed time, and so awake the sleeper.—FIRE-DAMP ALARM, is an important invention of recent date, due to Mr. Chuart from France, and liberally given by him to the public. It consists of a small ball of glass or of brass suspended at the end of a lever, and containing a chemical solution highly sensitive to the gas constituting fire-damp. Long before the atmosphere has become sufficiently vitiated to be dangerous to life, or to be capable of exploding, the chemical action in the ball has altered its weight, and thus caused the lever to move and let go an escapement which sounds an alarm.—ALARM-WHISTLE, is a steam-whistle set on a boiler to give notice when the water falls below its proper level. For this purpose the whistle-cock is connected by a lever with a float, and opens when this float goes below a certain level. The steam rushing through the whistle sounds the alarm.

ALARY, **BARTHELEMY**, a French apothecary, born at Grasse in the south of France. He lived in the second half of the 17th century, and acquired a very large fortune by the sale of secret remedies for the cure of ague. These remedies were chiefly composed of angelica, black hellebore, contrayerva root, gentian, and various mineral substances, the chief of which was arsenic. In 1680, Alary went to Paris and cured several distinguished personages belonging to the court of Louis XIV. He sold his patent medicines to the king for the use of the army and all the hospitals of France, and explained the mode of treatment in a work entitled "A Certain Cure for tertian and double tertian intermittent Fevers, in two days, by Alary's Patent Medicine, prepared and sold with the privileged permission of the King."

ALASCANI, in ecclesiastical history, a sect of anti-Lutherans, who maintained the doctrines of Carlstadt and Zwingli in reference to the Lord's Supper. The Alascani believed with the two latter, and in opposition to the former, that the text—"This is my body," did not mean the bread alone, but the whole sacrament of the Lord's Supper.

ALASEA, **ALASEY**, or **ALASEJ**, a river of considerable importance in the N. E. of Siberia. It takes its rise in lat. 67° N. and empties into the Arctic ocean.

AL ASHARI, **ABUL HASSAN ALI-EBN-ISMAEL**, founder of the sect of Asharites, born at Bassorah about A. D. 860, died about 935. Educated in the doctrines of the Motazelites, he separated from them and formed a sect whose distinguishing doctrines were: 1, that the attributes of God did not admit of a comparison between the Creator and his creatures; 2, that a believer, who has committed a sin, and dies without repentance, does not necessarily go to hell, but may still be the object of the divine clemency.

ALA-SHEHR, a city of Asia Minor, of 15,000 inhabitants, situated at the N. E. base of Mount Tmolus, and about 88 miles E. of Smyrna. It was founded by Attalus Philadelphus 200 years B. C., and is a Greek archbishopric. The city is surrounded by a wall, contains many ancient ruins, five Christian churches, and is engaged in a thriving trade.

ALATYR, a town in Russia, situated at the junction of the Alaty and Soora rivers, 80 miles N. W. of Simbeersk. It has a population of 4,407.—The river Alaty rises in the government of Penza, Russia, and has a course of more than 125 miles before uniting with the Soora.

ALAVA, **MIGUEL RICARDO DE**, a Spanish general and statesman, born at Vittoria, 1771, died at Barrèges, France, 1843. At an early age he entered the Spanish navy, in which he soon rose to the rank of captain. From the navy he passed to the army, and in 1807, joined the French party in Spain, to which he adhered until 1811, when he left it, and attached

himself to the Spaniards who were fighting in alliance with the English. He became a favorite of Wellington, who appointed him one of his aides-de-camp, and caused him to be promoted to the rank of brigadier-general. After the battle of Toulouse he returned to Spain, and was imprisoned by King Ferdinand VII. By the influence of Wellington, however, he was soon set at liberty, and appointed minister to the Hague. In 1820 he was deputy to the Cortes from the province of Alava, sided with the constitutional party in the revolution of 1822, and, when that party was overthrown, was compelled to retire to England. On the death of Ferdinand VII. in 1833, he returned to Spain, was appointed ambassador to London in 1834, and to Paris in 1835. After the revolution of La Granja he refused to take the prescribed oath, saying that he was "weary of continually taking new oaths," and went into exile in France, where he died.

ALAY, in Turkey, a ceremony which takes place upon the gathering together of the troops of the empire at the commencement of a war. It is described as a species of masquerade, in which the mechanics carry the tools used in their various callings, and show how they are employed. The sacred banner of Mohammed is borne in the procession, upon which no infidel is permitted to gaze. A dreadful massacre of Christians, who had imprudently assembled to see the proceedings, was perpetrated on one of these occasions.

ALB, a vestment of white linen reaching to the feet, and bound around the waist by a sash, worn by sub-deacons and all the superior orders of the clergy in the Roman Catholic church, while officiating in the more solemn functions of divine service. The alb is sometimes plain, and sometimes richly ornamented.

ALBA, a province of Piedmont, in the kingdom of Sardinia. It contains 408 square miles, and its population (in 1852) was 119,263. Its capital, Alba, is a bishop's see, and has a population of about 8,000. The district is very fertile, producing corn, wine, oil, fruits, truffles, and silk in abundance. There are quarries of marble, slate, and rock-salt. The Tanaro, a branch of the Po, flows through the province from south to north.

ALBACETE, a town in Spain, about 138 miles S. E. of Madrid, with a population of 13,143. It has flourishing manufactures of steel goods; and is noted for its extensive cattle fairs, which are held in September.

ALBA LONGA, one of the most ancient cities of Latium, is commonly supposed to have been built by Ascanius, B. C. 1152. It is said to have been called Alba from a white sow found in its vicinity by Æneas; and Longa from its form. It was destroyed by Tullus Hostilius, and its inhabitants removed to Rome. Strabo tells us that this city stood on the declivity of Mount Albanus, and Niebuhr says that the place where Alba stretched away on the mountain side can still be traced by the observant traveller.

ALBAN, SAINT, said to have been the first martyr for Christianity in Britain. He was born in the Roman town of Verulamium, went to Rome in company with Amphibalus, a monk of Caerleon, renounced his native Paganism and became a Christian. It is generally believed that he suffered martyrdom at the time of the persecutions of Diocletian, but authorities differ as to the precise date. Bede fixes it at 286; Usher reckons it amongst the events of 303. About 400 or 500 years after his martyrdom, Offa, king of the Mercians, built a large monastery in honor of him. Around this monastery grew up the present town of St. Albans in Hertfordshire.

ALBANENSES, a Manichæan sect which sprang up in the 8th century, the origin of whose name is uncertain. They had congregations in southern France, particularly in Donzenac. They maintained that 2 principles without beginning or end stood in eternal opposition to each other—the God of light and the God of darkness. The latter created this world and was the author of a great part of the Old Testament. The archangel Michael ejected him from heaven, but not before he had obtained possession of a third of the souls which he found there, and which he succeeded in imprisoning in the shape of mortal beings. Christ's mission on earth was to rouse these to repentance, and to liberate them. The millennium they believed to be close at hand, when man should resume his heavenly shape.

ALBANI, or ALBANO, FRANCESCO, an Italian painter, born at Bologna in 1578, died in 1660. He commenced the study of his art with Denys Calvert, but quitted him for Ludovico Carracci, under whose instruction he made rapid progress. He afterward went to Rome, where his frescoes in the national church of the Spaniards brought him into notice. He painted several large pictures at Rome, Mantua, and Bologna, but his fame is chiefly founded upon his smaller paintings. Albani was of a joyous and loving disposition, which showed itself in his choice of subjects. He loved to paint Venus and Cupid, young girls and children.

ALBANIA, in ancient geography a country of Asia, bordering on the Caspian sea, and bounded on the west by Iberia, on the north by the Caucasus, and on the south by a branch of the Araxes. It comprised the modern Daghestan, Schirvan, and Leghistan. Its inhabitants were a handsome and warlike race; so far acquainted with agriculture as to be able to raise sufficient food to supply their own wants. They brought a formidable army into the field against Pompey. Though often defeated, they were never subdued by the Romans.

ALBANIA (called by the natives *Shkipëri*, and by the Turks *Arnautluk*), an extensive province of European Turkey, between lat. 39° and 48° N. and long. 19° 5' and 21° 28' E., extending for about 290 miles along the Adriatic and Ionian seas, and having a breadth in the north and centre of nearly 100 miles, and in

the south, near the gulf of Arta, of not more than 40 miles. It is bounded on the N. by Montenegro and Bosnia, on the E. by Servia and the ancient provinces of Moesia, Macedonia, and Thessaly, and on the S. by the modern kingdom of Greece. Albania nearly coincides with the ancient Epirus, but extends farther to the north. The ridge of mountains, formerly called the Pindus, forms its ill-defined northern and eastern boundary. The general character of the country is rugged and mountainous. Nine ranges of hills intersect it from N. E. to S. W., which have numerous elevations of from 4,000 to 8,000 feet above the sea, and covered with snow during 9 months of the year. The rivers of Albania have so short a course from the mountains to the sea, that many of them during the summer are quite or nearly dry. The Drino is the largest of them, and is formed by the junction of two branches, which, unlike any other currents in the country, flow north and south between the mountain ranges till they meet near Prisen. Their combined waters then take a westerly course, and fall into the Adriatic about 14 miles S. of Scutari. The entire length of the Drino from its farther source is 150 miles, and it is navigable for large vessels as far up as Scela. The Bojana river connects lake Scutari with the Adriatic, and no others of the Albanian rivers are navigable, excepting the Arta and the Lorou for a very short distance. The mountain system of Albania being but a continuation of that of Greece, its lakes and watercourses have also the same remarkable features which characterize those of that country. Thus there are found circular basins and cavities without water, ponds that disappear at certain seasons, and rivers that have long subterranean courses. The lake of Janina has no visible outlet, but a considerable stream is suddenly formed at a distance, by its waters issuing from the ground. The lake of Ochrida, 20 miles long and 8 miles broad, is the highest in Albania, and the wildest and most beautiful lake in Turkey. The lake of Scutari is the largest in the country, contains a few small islands, and abounds in fish. In the mountains and forests of Albania, there are found bears, wolves, wild hogs, and deer; sheep, goats, and cows, are tended in the valleys; and the whole internal trade is carried on by means of an excellent breed of horses. Eagles and various kinds of birds are plentiful, and hawking is the favorite amusement of the wealthy classes. The lofty mountains and southern position of Albania give to it an extremely varied vegetation, exhibiting many forms similar to those of the Swiss Alps and the mountains of Scotland. It has many species of oak, the poplar, chestnut, cypress, and laurel; in its lower valleys maize is grown, and peaches, quinces, figs, and almonds abound. The trade of Albania consists in the exchange of natural products for the manufactures of more refined nations. Oil, wool, maize, and tobacco, are sent to Malta and to the ports of

the kingdom of Naples, and horses, sheep, and goats, to the Ionian isles. Timber also is exported from the gulf of Arta, procured chiefly from the ancient Acarnania on the south side of the gulf. Some embroidered velvets and cloths are also exported. In return, coffee, sugar, and French and German cloths, are imported from Trieste, cutlery and glass from Venice, and various other articles from Vienna, Genoa, Malta, and the Ionian isles. The merchandise is carried inland by means of pack-horses, 4 or 5 of which are attached together by cords, and guided by one man. The vigorous administration of Ali Pasha, by building roads and suppressing gangs of robbers, added much to the facility of internal traffic.—Albania ranks as one of the provinces of the Turkish empire, and is under the government of different Turkish pashas. Yet the turbulent and warlike character of the inhabitants refuses to brook a despotic control, and many of the tribes are virtually independent. The Albanians are about 5½ feet high, muscular, active, and erect. The women are tall and strong, with an air indicating ill-treatment, and laborious work. The distinguishing characteristic of the Albanians is a strong feeling of nationality, and their bold features and stately walk show a mind unsubdued by slavery. Their dress is fantastic and complicated, their habitations neat, and generally with a garden attached, and their food simple and nourishing. They are a nation of warriors, early trained to discipline, and constituting the best soldiers in the Turkish army. They usually carry two pistols, a cutlass, a sabre, and a long musket. Their language appears to be founded on the ancient Illyrian, but no grammar or dictionary of it has ever been published. Though Albania has several times changed its name, its masters, and its boundaries, a people cherishing unchanged their nationality, language, and manners, have from the earliest records of history occupied its mountains. First, the fierce tribes of Epirus, and the still more savage Illyrians, had possession of the country, and withstood alike the efforts of the Greeks and of the Romans to civilize them. During the decline of the eastern empire, they were distinguished by their prowess, and alone of all the districts to the north of Greece maintained their ground against the Bulgarians. On the conquest of Constantinople by the Latins in 1204, one of the imperial family of Comnenus succeeded in establishing a dynasty in this district, and the despots of Albania continued for two centuries only second in power to the emperors of Constantinople. Mohammed II. having conquered Constantinople, marched against the Albanians only to experience a succession of defeats. The heroism and talents of George Castriot, the last of the Albanian dynasty, resisted for more than 20 years the whole forces of the Ottoman empire, and it was not till his death in 1466, that Albania was annexed to the Turkish dominions. Until the middle of the last century, Albania

was divided into several distinct pashalics, when Ali Pasha, having married the daughter of the principal chief, succeeded in establishing himself as an independent sovereign over all its territory, and a wide extent beyond. After his overthrow, and during the insurrection of the Greeks, the Albanians were inclined to make common cause with the latter, but their overtures were unhappily rejected by the Greeks, who remembered only the cruelties which Ali had inflicted upon them. The attempts of the Albanians to coöperate in the war produced only their massacre and harsh treatment by the Greeks, and they were, therefore, forcibly thrown into the arms of the Porte, to which they have since continued nominally subject. The population of Albania is estimated at 1,600,000, of whom a considerable portion are Greeks and Turks, but the main body are of the original Arnaut race. They differ from every other people professing Mohammedanism, to which they were converted chiefly from political motives. The men usually go to the mosque, the women to the church, and some members of the family eat from the same table, and even from the same plate, meats forbidden to the others. The Turks not approving of such toleration and amicableness, usually regard the terms infidel and Albanian as synonymous.

ALBANO, a city of Italy, occupying the site of Pompey's Villa, about 14 miles S. E. of Rome. It is a favorite summer resort of the Roman nobility on account of its beautiful scenery and pure air. It possesses a museum of antiquities, and many very fine ruins. Population, 5,600.

ALBANY, an eastern county of New York, with an area of 483 square miles. The Hudson river, navigable as far as Troy, forms its eastern boundary, and the Mohawk flows for some distance along its northern frontier. Normans Kill and Catskill creeks furnish it with good water power. The land near the Hudson and some of the other streams is level and quite fertile, but in the northern and western parts, where the surface is mountainous, it is less productive and in some places sterile. Iron, hydraulic limestone, marl, and gypsum, are found in certain localities, though they are not abundant. The agricultural products in 1850 were 244,411 bushels of corn; 648,889 of oats; 406,040 of potatoes; 970,142 pounds of butter, and 71,804 tons of hay. There were 107 churches, and 17,054 pupils attending public schools. The county contains 14 newspaper offices, 8 cotton, 8 woollen, and 10 tobacco factories, 8 paper mills, 20 flour and grist mills, 28 saw mills, and a large number of other manufactories, foundries, tanneries, and breweries. It was organized in 1683, and named in honor of the duke of York and Albany, afterwards James II. Capital, Albany. Population in 1855, 108,681.

ALBANY, the political capital, and third city of the state of New York, is the oldest settlement in the United States except Jamestown.

in Virginia, the latter having been settled in 1607, and the former a few years later. It is situated on the west bank of the Hudson river, at the head of sloop navigation, and near the head of tide-water, in lat. $42^{\circ} 39' 3''$ N. long. $78^{\circ} 32'$ W., 145 miles N. from New York city, 164 W. of Boston, and 370 N. E. from Washington. Before the arrival of white men, says Munsell (*Annals of Albany*), it was known by the name of Scho-negh-ta-da, signifying "over the plains," a name which the Dutch subsequently applied to an Indian settlement on the present site of Schenectady, as over the plains from Albany. The first European vessel which ever ascended the Hudson as high as Albany, was the yacht *Half-Moon*, Capt. Hendrik Hudson, in Sept. 1609, occupying nearly 2 weeks in the passage from New York. A boat from the *Half-Moon* is said to have moored on what is now a part of Broadway. Several Dutch navigators followed Hudson during the next 3 or 4 years, and as early as 1614, a trading post and fort were established on Boyd's island, on the southern border of the present city, which has since been connected to the mainland by an embankment, and as the narrow stream which originally divided it from the shore is rapidly filling up, it will soon be difficult to identify it. In 1617, the fort was carried away by a flood, and a few years later, a new one was built on a more favorable spot near the present site of Fort Orange hotel, on Broadway, and named Fort Orange in honor of the prince of Orange, who then ruled the Netherlands. In 1630, Kilian Van Rensselaer, a wealthy pearl merchant of Amsterdam, purchased a considerable tract of land from the Indians on the west bank of the Hudson, including Fort Orange, and sent out a number of agricultural and mechanical emigrants to settle and occupy his domain. Seven years later, he bought from the savages, for a trifle, a large tract of land on the opposite bank of the river, thus becoming the proprietor of a domain extending 24 miles along the Hudson, and 48 miles from east to west, over which he exercised the authority of a sovereign, giving it the name of Rensselaerswyck, of which he was patroon. The administration of justice and of the financial affairs of the domain were committed to a commissary-general. A considerable portion of this princely estate is still in the hands of the Van Rensselaer family. In 1664, the province passed into the possession of the English, when the right of soil was confirmed to Van Rensselaer by a new patent, but the sovereignty passed to the British government. The fort, and chief settlement, which had been known as Fort Orange, Beaverwyck, Williamstadt, and the Fuyck, which latter signifies the bend in the river, was changed to its present name in honor of the duke of York and Albany, afterward James II. Albany received a city charter, and was organized, with Peter Schuyler, the friend of the Indians, as mayor, in 1686. The Schuyler family possessed the confidence and friendship of the Indians to such a

degree, that while other settlements were desolated by their forays, Albany never was attacked by them. The citizens of Albany took an active part in the revolutionary struggle, and though Gen. Burgoyne boasted that his army should revel on the spoil of that city, he only visited it as a prisoner. Sir Henry Clinton also made two unsuccessful attempts to invade it.—Albany became the capital of the state in 1807, but its growth was not very rapid till since the introduction of steamboats on the Hudson, the completion of the Erie canal, and the establishment of railroads centering at that point. As late as 1790, it contained but 3,506 inhabitants; in 1800, 5,349; 1810, 10,762; 1820, 12,541; 1830, 24,238; 1840, 33,762; 1850, 50,762; 1855, 57,333. Viewed from the river, Albany presents an imposing and picturesque appearance. Along the margin of the river is an alluvial valley about a quarter of a mile in width, whence the ground rises rapidly to an elevation of from 140 to 200 feet above the Hudson, and is separated into three distinct hills by deep ravines, through which considerable streams of water run, viz.: the Foxen Kill, Rutten Kill, and the Beaver Kill. These ravines have been partially filled up, and the streams which once danced and sparkled in the sun-light now find their way to the Hudson through capacious sewers, far below the surface. The view from the most elevated points in Albany is very fine. To the north may be seen the city of Troy and adjacent villages, and in the distance loom up the Green Mountains of Vermont. To the east we behold a beautiful extent of country, stretching beyond the Hudson as far as the eye can reach, and to the south the Helderbergs and the Catskill mountains, with the river flowing at their base.—Albany is peculiarly favored as a commercial town. In addition to the navigation of the Hudson river and the Erie and Champlain canals, which terminate here, it is connected by railroads with New York, New England, Canada, and the west, having no less than six railroads branching out in different directions, on which from 50 to 60 trains arrive and depart daily. The amount of property reaching tide-water at Albany by canal for the year 1856 was 2,123,469 tons, of which 858,771 tons were products of the forest; 1,023,417 of agriculture; 50,454 of manufactures; 14,078 of merchandise; and 176,754 various other articles. The Erie canal enters the city at the north end, where a capacious basin has been formed by erecting a pier more than a mile in length, which cuts off and encloses a part of a bend in the river, thus forming a basin having an area of 32 acres, which affords a safe winter harbor for boats and vessels navigating the river and canals, and also commodious wharfage. The lumber trade of the city is immense; the annual trade in boards, shingles, timber, and staves, being between 6 and 7 millions of dollars. About $1\frac{1}{2}$ million of barrels of flour, 3 million bushels of corn, $1\frac{1}{2}$ million bushels of barley, and between 4 and 5 million

lbs. of wool reach Albany annually; also about 1½ million dollars worth of unmanufactured tobacco. Several branches of manufactures are carried on very extensively in Albany, the heaviest being iron, hollow ware, and malt. From 150,000 to 200,000 stoves, and a quarter of a million barrels of beer, are produced annually from the foundries and breweries of that city. The very extensive nail manufactory near Troy, is owned chiefly by residents in Albany. There are in that city also extensive manufactories of piano-fortes, leather, coaches, sleighs, hats, caps, bonnets, &c.—For the city government, Albany is divided into 10 wards, each of which elects 2 aldermen, who, together with the mayor and recorder, form the common council or city government.—The streets of Albany are more irregular than those of most American cities, resembling Boston somewhat in this respect. State street, which runs from the river in a westerly direction to the capitol, is the most prominent and important avenue in the city. The architecture of Albany is not generally remarkable for its beauty, though it has improved somewhat during the past 20 or 30 years, and the city now contains many structures of a costly and elegant character; also a number of public squares, of which Capitol and academy parks, on each side of Washington street, are the most prominent. The Capitol, which was erected in 1807, at a cost of \$173,000, faces Capitol park on the west, and is a substantial and unpretending edifice of brown stone, from the Hudson river quarries, with a white marble portico in the Doric style. It is 115 by 90 feet and 50 feet high, and surmounted by a dome, on which stands a statue of the goddess of justice, and furnishes apartments for the legislature, the governor, adjutant-general, court of appeals, and supreme court. Immediately in the rear of the state house is the new state library building, which is fire-proof, and finished in the perfection of modern style. It contains about 80,000 volumes, among which are many of the most rare and valuable works to be found in the world. This is, of course, a free library. The state hall, furnishing apartments for the secretary of state, controller, treasurer, canal board, superintendent of public instruction, &c., is a massive white marble fire-proof building, not remarkable for architectural beauty. It was erected in 1843 at an expense of \$350,000, and stands on the opposite side of the square from the capitol, facing the south. Near the state hall, on the same side of the square, stands the city hall, also a substantial white marble building, costing \$120,000, and accommodating the city government, city and county courts and officers, also the U. S. courts. The Albany academy, a brown freestone building, in the Italian style, stands on Capitol square, and was erected in 1804 at an expense of \$100,000. This and the Albany female academy on Pearl street, are schools of a high character. The state normal school, established by the legislature in 1844 for the education of teachers in common

schools, is a very useful institution. Each county in the state may send pupils, male or female, equal to twice the number of their assemblymen. The school occupies a large five-story brick building on the corner of Lodge and Howard streets. The university of Albany is an institution of a high character, embracing departments of law, medicine, and science, in its various branches. Connected with this institution is the Dudley observatory, taking its name from the Hon. Charles E. Dudley, deceased, whose widow, Mrs. Blandina Dudley, is the founder and principal donor, having recently appropriated \$50,000 to that object. The building, which is in the form of a cross, 86 feet in length and 70 feet in depth, is located on a commanding eminence on the western limits of the city. The Albany medical college is a reputable institution of its kind, containing one of the most valuable museums in the country. Connected with this college is one of the best hospitals in the state. The exchange is a substantial granite building on the corner of Broadway and State street, occupied by the post-office, exchange bank, and other numerous offices. It was erected in 1838 at a cost of \$350,000, including ground. The young men's association for mutual improvement, which was the pioneer institution of the kind in the state, occupies Association hall in State street, furnishing to its members a reading room with the best newspapers and periodicals of the time, the use of an extensive library valued at from \$8,000 to \$10,000, and weekly lectures from December to March of each year. The Albany institute for the collection and diffusion of scientific information has a valuable mineralogical cabinet and library. The geological and agricultural rooms in the old state hall contain an attractive geological cabinet, formed under the direction of the state geological surveyors, and many remarkable implements and products of agriculture. Among the benevolent institutions is the orphan asylum, depending on benevolent contributions for support, and the St. Joseph's orphan asylum, connected with St. Mary's (Catholic) church, under the direction of the Sisters of Charity; the Emigrant's Friend Society, which furnishes aid to needy emigrants, and a society for furnishing work with remunerative pay to seamstresses, which was organized by the benevolent ladies of Albany. Albany contains 48 churches and 6 missions. The most imposing and prominent church edifice in the city is the cathedral of the Immaculate Conception, situated on a commanding eminence, fronting on Eagle, and extending from Lydian to Jefferson streets. It is 180 by 115 feet, with two towers, each 280 feet high. It is built of brown freestone in the Gothic style, cost about \$600,000, and is probably the largest structure of the kind in the United States. The religious denominations of Albany are represented by churches as follows: Baptist, 5; Bethel, 1; Congregational, 1; Episcopalian, 5; Friends, 1; Evangelical German, 1; Jewish synagogues,

8: Lutheran, 4; Methodist, 10; Presbyterian, 5; Reformed Dutch, 4; Roman Catholic, 5; Second Advent, 1; Unitarian, 1; Universalist, 1; missions of various denominations, 6; making a total of 54. The assessed value of property in Albany is \$28,000,000, of which something more than \$18,000,000 is real estate. The city is furnished with pure water, which is distributed in pipes from a large reservoir on an eminence near the western limits of the corporation.

ALBANY, a small maritime division of the Cape of Good Hope, about 65 miles by 35 wide, 550 miles E. of Cape Town. The great Fish river intersects its northern part, and the Kareega and Kowie run through it. The surface is undulating, and the scenery varies from rugged heights to pleasant plains. The climate is healthy, and the soil produces wheat, maize, barley, and oats. The cotton plant, though not extensively cultivated, produces a fibre of excellent quality. The improvement of live stock is carefully attended to by the settlers. The stock of sheep amounts to 811,000; goats, 84,968; horned cattle, 46,429; horses, 8,014. Grahamstown is the capital. Population, 14,728, of which 6,132 are colored.

ALBANY, LOUISE MARIE CAROLINE, OR HELOISE, countess of, daughter of Prince Gustavus Adolphus, of Stolberg-Gedern, born in 1758, died Jan. 29, 1824. In 1772, she married Charles Stuart, called the young pretender to the British crown, and after this marriage, assumed the title of countess of Albany. Her husband was almost always drunk, and used her with brutality, and she took refuge in a convent. After his death in 1788, the French court gave her a pension of 60,000 francs. She went to Florence to live, and there became attached to the poet, Alfieri, who was in turn completely fascinated by her beauty and her talents. In his auto-biography, Alfieri confesses that without the inspiring influence of the countess he would have achieved nothing. They are buried in one tomb in the church of Santa Croce at Florence, between the sepulchres of Macchiavelli and Michel Angelo.

ALBARRACIN, a town and bishopric in Aragon, Spain, on the banks of the Gaudalquivir, about 19 miles north-west of Teruel. It is the seat of several manufactures, and the wool grown in the vicinity is esteemed the finest in Spain.

ALBASIN, a town on the river Amoor, in Greater Tartary, held by the Russians. It has a strong fort. Lat. 54° N. long. 103° E.

ALBATENIUS, or ALBATENI, an Arabian prince and astronomer, who died about the year 929 A. D. He is also called Mohammed ben Geber Albatani, and Muhamedes Aractensis. His principal astronomical work was translated into Latin by Plato of Tibur, Nuremberg, 1537. His tables make Aracta the chief meridian. His theories are those of Ptolemy and Theon. In the opinion of Lalande, he was one of the 20 most eminent astronomers that have ever lived.

ALBATROSS, *diomedea*, a genus of web-footed sea-birds, which has 3 species. The common albatross, *D. exulans*, the albatross of China, *D. fuliginosa*, and the yellow and black-beaked albatross, *D. chlororhynchos*. The genus is distinguished principally by these characters, a very strong, hard, straight beak, which suddenly curves downward, with a sharp hook at the point. The feet are short; the 8 toes long and completely webbed; the wings very long and narrow. The common albatross is the largest sea-bird known; weighing from 12 to 28 lbs. The usual extent of its wings is about 11 feet; but a specimen in the Leverian museum measured 13 feet, and one was shot off the Cape of Good Hope, of 17½ feet in extent. The top of its head is ruddy gray; all the rest of its plumage white, with the exception of a few transverse, black bands on its back, and a few of the wing feathers. It is abundant, from the Southern ocean to Behring's straits and the coast of Kamtchatka, frequenting the inner sea about the Koorile islands, and the bay of Pentschinensi, in vast flocks, but scarcely visiting at all the eastern or American coasts. Their voracity is extreme, and it is said that they will often swallow whole a salmon of 4 or 5 pounds' weight. Their ordinary food is fish, fish-spawn, and small shell-fish; but they do not hesitate to take any animal substance found floating on the surface of the waves, and are often taken by sailors, with a line and hook baited with a piece of fat pork. Their powers on the wing are extraordinary, as might be presupposed from the extreme lightness of their immense, hollow wing-bones, which are said, by Edwards, to be as long as the whole of their bodies, and which the Kamtchatdales use as tobacco pipes; and from the great height, power, and continuance of their flight, the sailors, who know them generally as the "man of war bird," among other strange notions, believe that they sleep on the wing. A wild fancy, of which Moore has availed himself in his finest poem, the Fire Worshipers, where he describes the temple of the Ghebers—

So high
That oft the sleeping albatross
Struck the wild ruins with her wing,
And from her cloud-rocked slumbering
Started, to find man's dwelling there,
In her own silent fields of air.

ALBAY, a town of Luzon, in the Philippine islands. Population, 18,115. It is a place of some importance, being the capital of the province, and residence of a governor. The province is subject to frequent volcanic eruptions, but has a fertile soil. Population, 123,695.

ALBAYDA, the name of a district, town, and river, in the Spanish province of Valencia. The district is fertile and well tilled, producing wine in large quantities. Population, 28,000. Population of the town, 8,180.

ALBEDYHLL, GUSTAF, a Swedish diplomatist, long fixed at the court of Copenhagen. He wrote various memoirs in relation to European affairs, and especially to the condition

of things in northern Europe during the latter part of the 18th century. He died in 1819. His wife acquired some literary fame by her poem "Gefion," which was published at Upsal in 1814.

ALBELADORY, ABUL-ABBAS-AHMED, Arabian historian, died 895 A.D. He was minister of religion at Bagdad, resided at the court of caliph Almotavakkel, and was intrusted with the education of one of the princes of the caliph's family. He was the author of a work on the rights of territorial acquisition, in which he gives the history of the conquest of Syria, Cyprus, Mesopotamia, Armenia, Egypt, Africa, Spain, Nubia, and the Mediterranean islands. He also gives an account of the spread of the Mohammedan religion over Persia, Transoxiana, and the countries on the shores of the Indus. His work derives additional interest from its minute particulars concerning the social condition of the respective countries. He gives also an account of several Moslem cities, as Koofa, Bassorah, and Bagdad. M. Reinaud, in his "Arabian and Persian Fragments on the Indus," has introduced a chapter of Albeladory.

ALBEMARLE, a central county of Virginia, bounded by the Blue Ridge on the north-west, and the James river on the south, and watered by branches of the James. Its area is 700 square miles, its surface undulating, its soil very rich in the valley and river bottoms, and its scenery picturesque. About 8 miles from its capital, Charlottesville, is Monticello, formerly the residence of Thomas Jefferson, who was born in this county. The products of the soil in 1850 were 798,344 bushels of corn; 278,575 of wheat; 191,549 of oats; 4,828 tons of hay; 1,456,800 lbs. of tobacco, and 164,882 of butter. Indian corn, wheat, and sweet potatoes, are its staples. In 1850, its real estate was assessed at \$5,383,494; in 1856, at 7,250,618, showing an increase of 34 per cent. Population in 1850, free white, 11,875; free colored, 587; slaves, 18,338. Total, 25,800.

ALBEMARLE SOUND, a large inlet of the sea on the northern part of the coast of North Carolina, extending 60 miles into the country, and having a width of from 4 to 15 miles. It is separated from the sea by a narrow island, and as it receives the waters of the Roanoke and Chowan rivers, is nearly fresh. It has connection with Currituck and Pamlico sounds by inlets, and with Chesapeake bay by a canal out through the Great Dismal swamp. This sound has not a great depth of water, and is of comparatively little value for commercial purposes.

ALBENAS, JEAN JOSEPH, vicomte d', French politician, born at Sommières, near Nismes, in 1760, died at Paris in 1824. He took part, as a volunteer, in the American war of independence, and on his return to France held various public offices under the consulate and the empire. His writings include a historical and poetical essay on the glory and labors of Napoleon, and a work against gambling-houses. Col. Albenas, his son, published the *Ephémérides Militaires*, from 1792 to 1815.

ALBENGA, a province of Sardinia, containing 264 square miles, and 60,415 inhabitants. Its capital, of the same name, is the see of a bishop. Population, 5,400. It has the remains of Roman antiquities and feudal edifices. In 1796, this city was the head-quarters of Napoleon. The plain of Albenga is famous for the richness of its soil.

ALBER, ERASMUS, a German preacher and theologian, born near the end of the 15th century, died May 5, 1558. He studied in 1521 at Wittenberg, with Luther, to whom he became much attached, and whose doctrines he afterward preached. He did not generally remain long with one congregation, on account of his plain speech, and the violent character of his discourses. He finally received the appointment of general superintendent of the churches at New Brandenburg, where he died a short time afterward. Alber translated into German a part of the famous work of Albizzi, of Pisa, called "Conformity of St. Francis with Jesus Christ." He also wrote some religious poems, and a number of fables in German verse. His disposition was combative and satirical.

ALBERCHE, a branch of the Tagus, in Spain; length, 148 miles. Its source is in Old Castile.

ALBERGATI CAPPACELLI, FRANCESCO, marchese di, an eminent Italian dramatic writer and actor, born at Bologna. He died in 1802. He has been called the Garrick of Italy. His youth was wasted in debauchery, but after he reached the age of 34, he devoted himself to literature. At the age of 40 he had acquired a high reputation for the excellence of his dramatic compositions, and as an accomplished actor. His wit and humor are justly celebrated.

ALBERIC, a name common in the history of the middle ages.—The Lombard ALBERIC I., marquis of Spoleto and Camerino, sought by a marriage with Marozia, daughter of the Theodora of such ill repute in Roman history, to attain to the temporal authority over Rome. He, nevertheless, joined Pope John X. in the expulsion of the Saracens. He was murdered in 925. His widow wedded Hugo of Provence, king of Italy, who was afterward expelled by her son, ALBERIC II., who reigned over Rome until his death, in 954.—A third ALBERIC, a descendant of the counts of Tusculum, was ruler of Rome about 980.—ALBERIC of Romano, in 1236, podesta of Vicenza, and a zealous Ghibelline, was put to death, together with his whole family, Aug. 26, 1260.—The Cistercian ALBERIC, *des trois fontaines*, was author of a history reaching down to 1241.—ALBERIC de Rosato, a Bergamese, who died in Rome in 1854, wrote a commentary on the 6th book of the Decretals, besides one on the Pandects.

ALBERIQUE, a district and town in southern Valencia. Population of the district, about 16,000; of the town, 3,100. It produces silks, rice, and fruit.

ALBERON I., prince bishop of Liege, died Jan. 1129. Having previously held a high sta-

tion in the church at Metz, he was appointed to the episcopal chair of Liege in 1128. His administration was beneficent, and was marked by the abolition of mortmain, a custom according to which, when a vassal died, his lord could appropriate to his own use any of the goods of the deceased which he might desire. —ALBERON II., prince bishop of Liege, died March 27, 1145. He, also, was called from the church at Metz, where he held a high rank, to the episcopal chair of Liege. He succeeded Alexander in that office in 1186. His administration was a bad one. Life and property became insecure, and great abuses arose in the church under his charge. Complaint was at last made of him at Rome, and he was summoned before the pope. Alberon went to Rome, accordingly, had an interview with the pope, and was on his return to Liege when he was seized with a fever of which he died in Italy.

ALBERONI, GIULIO, cardinal and Spanish statesman, born in Piacenza, May, 1664, died 1752. He was the son of a vinedresser, was brought up to the church, and became curate. In the war of the Spanish succession the duke de Vendome commanding the French troops sent for Alberoni and desired him to exercise his influence over his flock in procuring supplies. Alberoni, seizing the opportunity thus presented, made himself useful to the duke and returned to Paris with him. He afterward accompanied him into Spain and succeeded ultimately in getting himself appointed envoy of the grand duke of Parma at the Spanish court. He was indebted to the celebrated Princess of Ursina, an Orsini, for her patronage; and when he went to Parma to negotiate the marriage of Philip V. with Elizabeth Farnese, he behaved with the proverbial ingratitude of courts, his first act after the queen's arrival being to induce her to apply for the dismissal of the princess. His rise was now rapid, and he soon became prime minister of Spain. His internal administration was distinguished for economy, the encouragement of industry, and the development of the resources of Spain. He remodelled the army, rebuilt the fleet, strengthened the defences, and increased the foreign commerce. But the ambition of restoring Spain to its former greatness, seconded by the queen's ambition to see the aggrandizement of her family, prompted him to a violent foreign policy. He seized on Sardinia in a time of peace, entered into a conspiracy to depose the regent of Orleans, and embroiled Spain with all the other powers of Europe which entered into an alliance. Alberoni's courage rose with the danger, but it was the courage of recklessness. He bade defiance to all his enemies at once. The foreign alliance and the hatred of the grandees at home, however, hurled him from his pride of place. Peace was concluded, one of the stipulations of which was Alberoni's dismissal. He was ordered to quit the kingdom in five days.

He fled to Italy, whither his foes pursued him, and induced Clement XI. to issue a warrant for his arrest. This he managed to escape, wandering about in circumstances of danger and privation; but on the pope's death, he appeared at Rome in conclave, and assisted at the election of Innocent XIII. who refused to molest him. He was afterward sent as legate into Romagna, and finally retired to his native state, where he died at the age of 88. He left a number of MSS., from which his "Political Testament" was completed at Lausanne, 1758.

ALBERS, JOHANN FRIEDRICH HERMANN, a German physician, born at Dosten, Nov. 14, 1805. He received his medical doctorate in the university of Bonn, in 1827. He afterward practised several years as assistant physician in the hospital of Walther, studying pathological anatomy at the same time. The year 1828 he spent in Berlin, and returned the following year to Bonn, where he delivered lectures on pathology, and in 1831 was appointed professor. In the midst of an extensive practice, he has found time to publish a large number of medical works.

ALBERT I., archduke of Austria and emperor of Germany, born 1248, died 1308. He was the son of Rodolph of Hapsburg, and succeeded to his hereditary estates, but Rodolph had been unable to secure the succession of the crown to him. He married Elizabeth, heiress of the former dukes of Austria. He offered himself as a candidate to the electors, who, however, preferred Adolphus of Nassau. For a time Albert dissembled his plans, and even remitted to the new emperor the crown and other royal insignia which were in his possession. But on the occasion of the coronation of Wenceslaus of Bohemia, he met 4 of the electors, and, in pursuance of a preconcerted plan, a diet was held at Mentz, before which Adolphus was summoned to answer pretended high crimes and misdemeanors. Adolphus as emperor of course refused the requisition of any such tribunal, and the diet thereupon adjudged him guilty of contumacy, and deprived him of the crown. War was declared; the two armies met near Gellheim, between Spire and Worms, and Albert engaged in personal combat with Adolphus, who was unhorsed and killed. After the death of his rival, Albert feigned a respect for the rights of the body of electors, declined to exercise the supreme power until a diet had been formally convened and he was duly elected, and crowned at Aix la Chapelle. Pope Boniface VIII., however, disapproved of the choice, stigmatized Albert as a murderer of his sovereign, and instituted a new combination against Albert. The activity of Rodolph, the emperor's son, disconcerted the plans of the rebels. He overran their territories and wasted them with fire and sword, and the confederacy was dissolved and a reconciliation took place between Albert and the pope. Albert was now involved in hostilities with Bohemia, of which he made himself master for a short time,

but the people rose against their foreign masters, massacred them, and he was obliged to retire. He made an attempt to subjugate part of Switzerland; but the inhabitants, in reply to his requisition to submit to his authority, told him that "they were so well pleased with their ancient constitution that they desired no other." Irritated at this refusal, Albert appointed bailiffs over the country, which rose against them and organized the Swiss Confederation. Albert now invaded Switzerland, but in passing the river Reuss, May 1, 1808, in a boat, was murdered by his nephew John of Hapsburg, of whose possessions Albert had possessed himself during his nephew's minority, and which he refused to restore, though often petitioned to do so after his coming of age. John was assisted in his revenge by three noblemen. Albert's daughter, Agnes, terribly avenged her father's murder. John fled to Rome, and, having received absolution, entered an Augustine monastery at Pisa, where he died. Albert was succeeded by Frederick the Handsome.

ALBERT, a French mechanic, born in 1815, in Bury, in the department of Oise, whose real name was Alexandre Martin, but who, under the name of Albert, rose, after the revolution of February, 1848, to the rank of a member of the provisional government. He was a modeler by trade, and in 1830, when he came to Paris, he took part in the July revolution, and thenceforward devoted himself to political and social reforms. He became implicated in the famous trial of April, 1834. A short time afterward we find him at Lyons, at the head of *La Glaneuse*, a republican journal, of which he was the founder, and which repeatedly brought him into difficulties with the government, subjecting him eventually to a fine of \$1,000. This was inflicted upon him at the time when the insurrection broke out at Lyons, and Albert, exasperated by the persecution of which he had been the victim, became one of its leaders, and electrified his fellow mechanics and revolutionists by the motto, "*Vivre en travaillant, ou mourir en combattant*," which they adopted as their battle-cry. In 1840, he founded a new journal in Paris, entitled *L'Atelier*, of which all the editors and contributors belonged, without one single exception, to the laboring classes. When the revolution of 1848 broke out, he was a member of the council of the *Prud'hommes* of the Seine; but while he discharged most faithfully his duties as chief editor of the *Atelier*, he continued at the same time to attend steadily to his business, and on the evening of Feb. 23 he was actively employed as a workman in a manufactory of buttons. As Cincinnatus, in former days, was called away from the field, Albert was now taken away from the factory in order to attend the forum, in obedience to a summons from Louis Blanc, who was anxious that one of the mechanics of France should form part of the new government, in order to impart to it a genuine democratic

character. Albert bore his new honors with modesty. He became vice-president of the committee of delegates, and afterward was promoted to the rank of president of the committee which sat for the purpose of distributing rewards to deserving citizens. He soon, however, relinquished these offices, and became a member of the constituent assembly for the department of the Seine, having polled 12,000 more votes than his political godfather, Louis Blanc. After the affair of May 15, he was accused of having instigated it. The decree in which Louis Blanc, Albert, Ledru-Rollin, Barbès, Raspail, Pierre Leroux, and Thoré, were proclaimed as members of the revolutionary government, was said to have been promulgated by him. He was accused before the high court of Bourges, but refused to recognize the jurisdiction of that tribunal, and declined to answer any questions. He was sentenced to be transported, detained for some time in the citadel of Doullens, and subsequently removed to the prison of Belle-Isle, where he now is.

ALBERT, margrave of Brandenburg, and first duke of Prussia, grandson of Albert Achilles, elector of Brandenburg, was born 1490, died 1568. He was elected grand-master of the Teutonic order, and was immediately involved in the hostilities which had been subsisting for years between the order and the Poles. Sigismund of Poland having determined to root out the order, was nevertheless induced to grant a four years' truce, during which Albert solicited aid from the other German princes. He betook himself to Nuremberg, where he had an interview with Luther, and by him was persuaded to embrace the interests of the Reformation. At the expiration of the time, the grand-master consented to hold the territory of the order as a fief from Poland; and the majority of the knights, laying aside their insignia, agreed to hold under Albert. The secularization of the order was vainly protested against. Albert now threw himself heartily into the reformation movement, established new schools, and founded the gymnasium university of Königsberg. The dissensions which sprang up on doctrinal points between the professors of his new university, involved him in a sea of trouble, which lasted till his death.

ALBERT, PRINCE, husband of the queen of England, duke of Saxe Coburg Gotha, born at Rosenau, Aug. 26, 1819, 2d son of Ernest, duke of Saxe Coburg Gotha, under whose immediate personal superintendence he received an admirable education, which he completed by attending the university of Bonn during 3 academical sessions. In July, 1838, he visited England, in company with Leopold, king of Belgium, and spent some time at the court of the youthful queen, and in Nov., 1839, it was formally announced to the privy council by the queen that she intended to form a matrimonial alliance with Prince Albert. The secret had long been public property, but was kept in suspense

by the decorous contradictions of the ministerial journals. The marriage was solemnized Feb. 10, 1840. For the purpose of rendering him perfectly independent, the munificent personal allowance of \$150,000 a year was made to him by parliament. Besides which he is a field marshal, knight of the garter, and other orders, colonel of the fusilier guards, and holds a number of other lucrative or honorary appointments. He is a man of refined taste, and an accomplished musician and draughtsman. Forbidden by his position to interfere in politics, he occupies himself with superintending the education of his children. The progress of the arts and sciences and general philanthropic subjects, such as the "dwellings of the working classes," sanitary arrangements, &c., also engage his attention. He is patron and president of numerous charitable institutions, in which he takes a personal interest. As president of the society of arts, he was the chief promoter of the great exhibition of 1851. Similar exhibitions confined to native productions had been long held in Paris, Brussels, and even in Manchester and other towns of England. But when the idea of holding one in London was suggested to Prince Albert, he readily adopted it, and zealously coöperated in the scheme of extending it to the whole world. The popularity which for a long time he enjoyed with all classes, was for a brief space overclouded in 1855, when rumors were current among the opponents of government that the prince took an undue interest in political affairs, and even held communications with some German courts, which were prejudicial to English interests, so that the ministers thought it necessary to clear up all doubts by an explicit denial of the report from their places in parliament. He is noted in a country of scientific agriculturists for the spirit with which he carries out agricultural experiments, and his farming stock has been frequently exhibited and gained prizes. As a patron of art, Prince Albert has shown himself particularly active.

ALBERT, prince of Wales and duke of Cornwall, born Nov. 9, 1841, second child of the queen of England and Prince Albert, heir apparent to the throne of England. The principality of Wales gives the hereditary title to the eldest son of British sovereigns. It was created by Edward I., who having promised the Welsh on their submission to give them a native sovereign, made his infant son Edward, born at Caernarvon, their prince. The revenues of the duchy of Cornwall are an appanage of the prince of Wales, and amount to about \$300,000 per annum.

ALBERT VON APFELDERN, German ecclesiastic, 12th and 13th century, bishop of Livonia. He proclaimed a crusade against the pagans with whom he was surrounded, and set out with an army furnished by the Emperor Philip and by the northern princes. In 1200 he founded the town of Riga, and instituted a military order, which was subsequently merged in the Teutonic order of Prussia.

ALBERTI, LEO BATTISTA, an eminent architect, poet, painter, and sculptor, was born at Florence in 1404, and died in 1472. At the age of 20 he composed an excellent comedy in Latin. He wrote on various subjects, and his essays on painting and sculpture are greatly admired. His most famous work, however, is a treatise *De Re Edificatoria*. As an architect, he was often employed by Pope Nicholas V., and he designed and superintended the erection of many edifices in Rome, Florence, and Mantua.

ALBERTINELLI, MARIOTTO, a painter of the 16th century, died in 1512 or 1520. He was a friend and pupil of Fra Bartolomeo, and an imitator of his style. There is a beautiful painting by him in the gallery of the Uffizi at Florence, representing the visitation of Mary and Elizabeth. The academy at Florence also contains some fine pictures by him. In the Berlin museum there is a painting of the Assumption, the upper portion of which was painted by Fra Bartolomeo and the lower by Albertinelli. He never attained, however, the excellence of his celebrated master.

ALBERTINI, FRANCESCO, a Calabrian Jesuit, author of some theological works published at Naples in 1606 and 1610. His most noted production is a treatise entitled *De Angelo custode*, in which he asserts, that brute animals have their guardian angels. This Francesco Albertini, who died in 1619, must not be confounded with FRANCESCO ALBERTINI, an Italian savant and antiquarian, who flourished at the beginning of the 16th century, and who was the author of a work entitled *Opusculum de mirabilibus novæ et veteris urbis Romæ*, Rome, 1505; and another called, *Tractatus brevis de Laudibus Florentiæ et Sæonæ*, 1509; an essay (in Italian) on the statuary and paintings at Florence, Florence, 1510, 4to.

ALBERTRANDY, JAN BAPTIST, one of the persons who in the latter half of the 18th century contributed to the revival of science and knowledge in Poland, was born in 1731 at Warsaw, died August 10, 1808. He received his education at the hands of the Jesuits, and made such extraordinary progress, that in his nineteenth year he was appointed professor in the college at Pulschontusk, afterward in that at Plock and at Wilna. Zaluski appointed him superintendent of his large library in Warsaw, and in 1764 he took charge of the education of Lubienski, afterward minister of justice, and grandson of the primate. He afterward received permission to withdraw from the Jesuits entirely. Stanislaus Augustus made him his reader, and gave him the charge of his private library. He spent 3 years in Rome, making a collection of works on Polish history, for which purpose he afterward visited Stockholm and Upsala.

ALBERTSEN, HAMILTON HENDRIK, a Danish poet, born at Copenhagen, 1592, died about 1630. He studied at the university of his native town, and afterward at that of Giessen in Germany. On his return he obtained employment in the Danish chancery. After 8 years spent

in this service, he abandoned it and travelled over Europe, whence he passed into Egypt, where he died. He was, as far as we have record, the first Danish traveller who ever visited Egypt. His Latin poems, printed in Rostgaard, were entitled, *Delicia poetarum Danorum*, and *Musa adolescentis Venus*. He wrote in Latin prose, *Disputatio de Principiis seu Causis Rerum naturalium*.

ALBERTUS MAGNUS (ALBERT THE GREAT), a celebrated scholar of the 13th century. He was of a noble Swabian family, and studied at Padua and afterward entered the Dominican order. He was celebrated for his learning and knowledge of physics, which transcended the ordinary acquirements of the learned, even of his age. In 1249 he was tutor of the school at Cologne, in 1254 provincial of his order, and in 1260 bishop of Ratisbon. In 1262, he returned to his convent, and died there in 1280. Albert the Great is the most fruitful writer, and perhaps the most learned man, that the middle ages produced. The titles of his works fill 12 folio pages in catalogues, and all branches of human knowledge, theology, philosophy, natural history, physics, astronomy, and alchemy, are represented in them. He devoted himself especially to the study of Aristotle and of the Arab philosophy. His cotemporaries, marveling at his learning, regarded him as a magician, and he became the subject of many legendary stories. But his works prove that he had more patience than genius; he accumulates citations from his immense reading, almost by chance, and settles vital problems by carefully balancing the weight of authorities. He had numerous disciples, of whom Thomas Aquinas was the most distinguished; who, under the name of Albertists, propagated his doctrines, and confirmed the reign of Aristotle during the middle ages.

ALBI, a French town, capital of the department of Tarn, 347 miles due south from Paris. Population, 18,788. Its Latin name was Albiga. The name of the sect of Albigenses was probably derived from this place. A council denouncing their tenets was held here in 1176. Albi was one of the most important Protestant towns during the reign of Louis XIV., and the revocation of the edict of Nantes drove many of its citizens into exile.

ALBIGENSES. As early as 660, a sect sprung up in the eastern church denominated Paulicians, from the paramount importance attached to the writings of Paul. They were generally Gnostics, though it is said they vehemently repelled the charge of Manichæism. About 100 years later, the Paulicians began to extend themselves into Europe, until (970) Bulgaria had become the principal centre of their influence. Hence, they were sometimes called Bulgarians. From Bulgaria (1000) in spite of their Manichæan faith, which would naturally have shut them out from the sympathies of the western church, we find them extending their doctrine by successive migrations into Italy, Germany, Lombardy, Sicily, and France.

Here they became at once the forerunners and germs of the Albigensian heresy. In Italy, they were denominated Paterins; in Germany, Catharists; and in France, Bulgarians; and later Albigenses, from the city or province of Albi. Historians are not very well agreed as to the doctrines of the Albigensian faith. They probably had no distinctly pronounced symbol of doctrine, beyond a determined opposition to some things in the external forms or less essential practices of the church, which they deemed abuses. Their heresy, so far as it was doctrinal, was mainly an exotic, brought thither in the migrations of the Bulgarians. The movement, so far as it was native to Languedoc and Provence, was one of feeling rather than of judgment, and so in the main we find it less urgent in matters of doctrine, than in matters of practical and personal religion. It is, however, pretty evident that the Albigenses, as a body, received somewhat passively the oriental Gnostic doctrines, and that, consequently, they were more or less imbued with Manichæism. But in this they were by no means harmonious. And many writers deny that the Albigensians were even Gnostics. It is certain, however, that they held to the Persian dualism, and the theory of emanation was currently accepted by them, though both of these leading tenets were modified in the special creeds of the various parties; one class believing in 2 eternally opposing principles of good and evil, and in 2 creations, material and spiritual, corresponding to them. Another class contended that Satan was only a fallen angel, and that the material world proceeded from the pure God. These last agreed with certain of the Gnostics in the opinion that the God of the Old Testament was an evil deity. Upon the Trinity there was substantial unity of faith among the Albigenses. They all regarded Christ as a subordinate being, the highest after God, though some of them had no hesitation in applying the name of God both to Christ and the Holy Spirit. There were also those among the Albigenses, who are said to have taught that the Christ born in Bethlehem, and crucified in Jerusalem, came of the evil principle, and was to be rejected; the Christ of the good principle never having assumed a palpable form, but existing spiritually in the world, and animating the person of the apostle Paul. The miracles of Jesus were interpreted in a higher sense, as symbols of the spiritual wonders that he wrought. Among the Albigenses we find a doctrine of correspondence between the material and spiritual worlds, a belief in ministering spirits, in the preëxistent state of the soul, in metempsychosis, and in a final judgment. They recognized a hidden sense in the Bible, which they tried to discover by the allegorical method of interpretation. Baptism by water they rejected as an external rite. The elements in the communion they looked upon as emblems. In general, the Albigenses protested strongly against the traditional and ceremonial character of the ruling

church, retaining all the while their own ceremony of spiritual baptism, to which they seem to have ascribed a magical efficacy. The "perfect" among them were ascetics, and the people of their communities were distinguished generally by a strict and blameless life, disapproval of oaths, abhorrence of war and the punishment by death, and the exercise of hospitality and beneficence. They were diligent in making proselytes, sending their youth to the best seminaries, and seizing every opportunity which, as merchants and missionaries, they had for disseminating their views. Among them were men of learning, rank, and substance, all actuated by the same zeal for their faith; and one great noble, Count Raymond of Toulouse, was their champion in the furious wars which were subsequently brought upon them. In many parts of the south of France, the Albigenses became more powerful than the church, so that the measures of the Roman see could not be executed against them by the resident clergy. Councils were called (1165, 1176, 1178, 1179) which successively condemned them as heretics. But the rapidity with which this sentiment of practical more than doctrinal opposition to the church was extending itself, seemed to Pope Innocent III. to call for more vigorous measures than councils and excommunications. In 1207, therefore, he ordered a crusade to be preached against the Albigensian heresy, commanded that Raymond of Toulouse should be anathematized in the churches, and proclaimed an indulgence for all those who should take up the cross against the Provençals. Raymond was at length awed into submission, and joined in the crusade. But his nephew, Raymond Roger, now espoused the cause of the Albigenses. He was soon taken prisoner by the legate, and then commenced a more systematic effort against the heresy itself, under the conduct of Simon de Montfort. A relentless war of extermination commenced, which was conducted with the utmost fury, and marked by frightful excesses of cruelty. The sect continued with varying fortunes till 1242, when it seems to have become, as an open profession, entirely extinct.—The Albigenses are to be distinguished from the Waldenses. The Waldenses are a later sect, and much less involved with Gnosticism, since they were a native growth of the western church, the conservative faith of whose Nicene symbol had effectually preserved them from the dualistic tendencies of the Antiochian school. The Albigenses, on the other hand, are, as we have seen, to be traced through the Catharists, and the Paulicians, back to the eastern church.

ALBIGNAC, MAURICE, comte de Castelnau, soldier, born in 1775, died in 1824. He first served in the French army, but emigrated in 1792, and found employment first under Condé, and afterward in the Austrian service. During the consulate he returned to France, and in 1806 entered the gendarmes d'ordonnance. In 1807 he was aide-de-camp to the king of West-

phalia, and rapidly rose to the position of general of division, master of the horse, and finally became minister of war. In the Russian campaign he was chief of the general staff under St. Cyr. Afterward attaching himself to the Bourbons, he was made officer of ordnance to the duke of Angoulême. Upon the return of Napoleon he retired to Ghent. He subsequently held the office of secretary-general in the ministry of war, and was afterward governor-general of the school of war at St. Cyr. He died a marshal.

ALBIN, ELEAZAR, an English painter and ornithologist, who acquired considerable reputation in London, toward the middle of the 18th century, by his water-color illustrations of works on natural history. Beside having illustrated the works of others, he is the author of a work entitled, "A Natural History of Birds, illustrated with two hundred and five copperplates, engraven from the life, and exactly colored by the author." London, 1787, 8 vols. 4to; and of "A Natural History of English Song Birds." London, 1787, 12mo.

ALBINI, FRANZ JOSEPH, baron von, a German statesman, born in 1748 at St. Goar, died at Dieburg, Jan. 8, 1816. The Emperor Joseph II. employed him in important missions to the various courts of Germany. After the death of Joseph he became minister in the electorate of Mentz. It was his idea to prevent the encroachments of the French by calling out the militia. Upon the death of the elector, he alone paid his allegiance to his successor Dalberg; and when that prince became grand-duke of Frankfort, he made Albin his prime minister. In 1815 he again entered the Austrian service, and was appointed minister plenipotentiary at the Frankfort diet, but died before entering upon that office.

ALBINOS, a name applied to those unfortunate individuals, in whom, by some defect in their organization, the substance which gives color to the skin, hair, and eyes, is absent. These persons, whether Indian, negro, or white, appear of a uniformly dead, milky hue, with hair of the same shade, and eyes with the iris deficient in the black or blue or hazel pigment, which in others conceals the delicate network of blood-vessels, and the intense redness they diffuse over the surface. In the albino, both the pupil and the iris, lacking this colored curtain, the one from the concentration within it of fine blood-vessels, is of the deepest red, and the circle around it is of a pink color. It is supposed that the dark color of the eye and hair is owing to a large quantity of pigmentum in the system, and light hair and eyes to a smaller proportion of it. The name albino was originally applied by the Portuguese to the white negroes they met with on the coast of Africa. With the features of the negro and the peculiar woolly form of the hair, the color of the skin was white like pearl, and the hair resembled that of the whitest horse. The eye, instead of the jet-black hue, which seems given

to the inhabitants of the tropics to enable them to bear the intense glare of the sun, was like that of the white rabbit and ferret, and like this, better suited for use in the moonlight, and in places sheltered from the light of day. From this inability to bear the light, which, however, is said to be much exaggerated, Linnæus called the albinos nocturnal men. They generally lack the strength of other men; and a peculiar harshness of the skin, such as is noticed in cases of leprosy, would seem to indicate that the phenomenon might result from a diseased organization. Yet the albinos suffer from no different complaints from other persons. As in their physical development, they are correspondingly deficient in their mental capacity. In the same family several children are sometimes born albinos. They are most generally of the male sex. An instance is recorded of a Welsh family, in which every alternate child was an albino. It is stated by Esquirol that two albinos married, and had two children that were not albinos, but of quite brown color. It is not understood to what ultimate cause the phenomenon is to be attributed. It is observed in all climates, and among all races of men; indeed, it is not limited to man; for individuals possessing the same peculiarities are found among a great variety of the warm-blooded animals, and according to Geoffroy St. Hilaire, in fishes and some species of molluscan animals as well. Examples are not very rare among the feathered tribe, the effect being seen in the color of the plumage, as in other animals in that of the hair. The white crow and the white blackbird are albinos. Albino mice are not very uncommon. Blumenbach notices the feebleness of their eyes, and their disposition to avoid the light, by their closing their eyelids even in the twilight. The white elephants of India are venerated by the natives, who believe them to be animated with the souls of their ancient kings. In the human race perhaps more albinos are to be found among the negroes, than among any other people; but this may be owing to the peculiarities being with them more prominent, and attracting more attention. One of the kings of the Ashantees is said to have had particular regard for these people, and collected around him about 100 of them. According to Humboldt, albinos are more common among nations of dark skin, and inhabiting hot climates. In the copper-colored races they are more rare, and still more so among whites. This is opposed to the general fact of the natural white complexion being found among people of colder, and the black among those of hotter climates.—The knowledge we possess of this subject is derived from the scientific investigations of Blumenbach, of Sansure, who describes them in his *Voyage dans les Alpes*, Buzzi, surgeon to the hospital at Milan, Sömmerring, and others.

ALBINUS, BERNHARD SIGFRIED, German surgeon, born Feb. 24, 1697, died Sept. 9, 1770. He was educated by his father, profes-

sor of medicine at Frankfurt, and afterwards at Leyden. Here young Albinus, by his diligence and talents, secured the friendship and assistance of Boerhaave, Ruysch, and Rau. He went to Paris, and studied under Winslow and Senac, and so great were his merits, that at the age of 22 he was called to fill the office of demonstrator at Leyden, then the most celebrated school of medicine in Europe, and 2 years later became professor of anatomy and surgery. He was equally eminent for the soundness of his knowledge, the delicacy and accuracy of his demonstrations, and the happy facility with which he communicated his own vast science to his pupils. He brought out *De Ossibus Corporis Humani*, *Historia Musculorum Hominis*, and lastly, *Tabulae Sceleti et Musculorum Corporis Humani* (Leyden, 1747, fol.), illustrated with costly plates prepared under the author's own inspection. He edited the works of Harvey, the anatomy of Vesalius, and the anatomical plates of Eustachius.

ALBINUS, DEOMUS OLODRUS, an African, having attained high rank in the Roman army, was proclaimed emperor after the murder of Pertinax by the British legions. Severus, having been proclaimed by the Illyrian army, fought him, and having taken him prisoner, ordered him to be beheaded A. D. 198.

ALBION, the appellation by which Great Britain was originally known to the Greeks and Romans. The Gaels of Scotland still call it Albion, which in their tongue means white or fair island. The word has probably the same root with the Latin adjective *albus*. It is most likely that the name was given to England by the Gaels of the opposite coast, with reference to the chalky cliffs of Kent.

ALBION, the capital of Orleans Co., N. Y., is situated about 40 miles N. E. of Buffalo, in Barre township. The Erie canal and Rochester, Lockport, and Niagara falls R. R. pass through it. The village has 5 churches, 2 banks, and 8 newspapers. Population in 1850, 2,251.

ALBION, New, the name originally bestowed by Sir Francis Drake on the territory now known as California, which he visited in June, 1579. The title is now restricted by Humboldt and other geographers, to that part of the N. W. coast lying between 43° and 48° N. lat. and constituting a portion of Oregon territory.—Capt. Cook first visited it in March, 1778. In 1792, Vancouver explored the country in all directions; he described it as a fertile region, thinly settled by savages, united to those inhabiting the whole N. W. coast of the continent. His maps of the country are the best in existence. An accurate account of a portion of New Albion may be found in Lewis's and Clark's "Expedition to the Sources of the Missouri."

ALBISOLA MARINA, a small town of Sardinia, in the province of Savona, and near the town of that name. It is noted for the manufacture of porcelain vases. In its neighborhood are some villas of the Genoese nobility.

ALBISSON, JEAN, a French lawyer, born at Montpellier in 1782, died Jan. 22, 1810. In 1787 he published a work on the origin of the diocesan municipalities of Languedoc, and another on the municipal laws of Languedoc. He filled many executive offices under the various governments which succeeded the revolution.

ALBITTE, ANTOINE LOUIS, a member of the French convention of 1798, born about the middle of the 18th century, died in 1812. He was educated as an attorney, and first appeared in Paris as a member of the legislative assembly for the department of Seine Inferieure. In that body he was foremost in urging all those anti-ministerial measures which shortly brought the French monarchy to the ground. After the dethronement of the king, and the assembling of the convention he voted for the death of the king, and opposed the appeal to the people and the reprieve. In the convention he took part with the Jacobins, and demanded the ostracism of Roland. As commissioner to the army of the Alps, and afterward in the departments of Ain and Mont Blanc, he performed his stern duties in the inflexible and rigid spirit of a Montagnard. For this he was afterward denounced by those departments when the reign of terror had ended, and the voice of humanity was again able to make itself heard. Having taken an active part in the Jacobin insurrection of the 1st Prairial, he was denounced, and his arrest voted by Tallien and the other Thermidorians. His fellow-sufferers were Bourbotte, Romme, Duroi, Goujon, Duquesnoi, and Soubrany. Albitte escaped by flight. He re-appeared in France after the amnesty of the 1st Brumaire. A characteristic anecdote is related of him. When the *Caius Gracchus* of Chenier was being acted in one of the Parisian theatres, the following sentiment occurred: *des lois et non du sang*, "the laws and not blood." The public present applauded vehemently. Albitte rose and in his terrorist enthusiasm exclaimed, *du sang et non des lois*! "no; blood, blood, and not the laws." The directory made him mayor of Dieppe. After the 18th Brumaire he entered the army, and died of fatigue and cold in the disastrous retreat from Moscow.

ALBIZZI, an Italian family which played a distinguished part in Florentine civic history during the 14th and 15th centuries. They all belonged to the Guelfic or democratic party. The best known are, I. PIETRO, one of the triumvirate who governed Florence, from 1372 to 1378. He suffered the penalty of death for usurpation. II. MASO, or TOMASSO, son of the former, was chief of the republic of Florence 1382-1417. Under his sway Florence reached the zenith of her glory. III. RINALDO, son of Maso, a leader of the anti-Medicean faction, in the 15th century. He died in exile. IV. ANTONIO, a Florentine theologian, born at Florence, Nov. 25, 1547, died at Kempten in Bavaria, July 17, 1626. Having embraced Protestant-

ism he fled from Italy, and resided in various cities of Germany. He has left several theological works.

ALBO, JOSEPH, a learned Jew, born in Soria in Castile, died in 1480. He is celebrated on account of his opposition to Christianity.

ALBOIN, the founder of the Lombard kingdom in Italy, which he laid waste to the gates of Rome in the year 568. He chose Pavia as his residence, which city was for a long time the capital city of the Lombards. He was esteemed by his subjects for his mildness and equity, and finally died by the hand of an assassin.

ALBON, D', the name of a distinguished French family, who trace their descent from ANDRE D'ALBON, seigneur of Curis, near Lyons, who lived in the latter half of the 18th century of our era. In the 16th century they supplied loyal warriors and servants to the French monarchs; and later, ANTOINE D'ALBON became archbishop of Lyons, and curbed the Protestants with the strong hand of power. He died 1574.—CLAUDE CAMILLE FRANÇOIS D', another scion of one of the branches of this family, born at Lyons in 1753, died at Paris in 1788. He was an ardent admirer of Quesnay, the chief of the physiocrats, and exhibited great eccentricity of character. In the little town, of which he was the owner, in Normandy, he constructed granaries with this inscription placed upon them, *Gentium Commodo Camillus* III. He gave a distinguished burial in his own grounds to the savant Count de Gebelin, which made him popular with the French world of letters. One of his various literary performances was a comparison between the age of Augustus and that of Louis XIV., in respect to literature and the sciences. His poems have been the theme of the brilliant ridicule of Rivarol.

ALBONI, MARHETTA, the most distinguished contralto singer of this century, was born at Cesena, in Romagna, March 10, 1826. Her parents, who were descended from an ancient Italian family, gave her an excellent education, and discovering that she possessed extraordinary vocal powers, placed her, at the age of 11, with the maestro Baglioli. Her musical education was completed 8 years afterward, under Rossini, at the lyceum in Bologna. Like most modern Italian singers of note, she made her debut at the Scala theatre in Milan, and after singing at Vienna, St. Petersburg, and in various parts of Italy and Germany, reached London and Paris in the year 1847. Although comparatively unknown and unheralded, the sensation which she created in these cities was almost unprecedented. Her voice, a true contralto of the sweetest and most sonorous quality, extending from F in the bass to C in *alt* of the soprano—a compass of 2½ octaves, astonished the critics, while her execution was pronounced faultless. For several years, in competition with the most distinguished lyric artists, and in the comparatively limited *repertoire* of contralto music, she maintained her reputation

as a singer, and is perhaps at this moment the most finished artist on the stage. Her favorite parts were in Rossini's *Gazza Ladra*, *La Donna del Lago*, *Semiramide*, and *Cenerentola*, the florid music of which she executed with marvellous ease. Her ambition also prompted her to attempt music, not strictly within the range of a contralto voice, such as that belonging to the parts of "Rosina," "Amina," or "Zerlina," which necessarily she could not render with entire success, although the performance surprised and delighted her audiences. One of the most recent parts which she has studied, is that of "Fides" in Meyerbeer's *Prophète*. In June, 1852, she arrived in New York on a professional tour, and for upward of a year sang in operas, concerts, and oratorios, in the principal cities of this country, with great success. Among her erratic freaks, while here, was her debut in "Norma," a part singularly unsuited to her voice, style, and appearance. Since her return to Europe, she has continued to sing in her favorite parts, with no diminution of fame or effect. Several years ago she was married to Count Pepoli, an Italian nobleman, although she is still known to the world only by her maiden name. Madame Albini is rather below the average height of women, with a figure decidedly inclining to embonpoint, regular and very pleasing features, a fresh complexion, and black hair cut close around her neck. With her eminent musical acquirements, she is deficient in dramatic force, and in parts requiring a large style and lofty declamation, is obliged to rely in great measure upon her voice and execution.

AL BORAK, the name of the camel on which Mohammed made his imaginary journeys from the temple at Jerusalem to the celestial regions.

ALBORAN, a small Spanish island in the Mediterranean sea, 60 miles S. S. W. of Almeria, lat. 35° 58' N. long. 81° W. Inhabited by fishermen.

ALBORNOZ, GIL ALVAREZ CARILLO, a Spanish military prelate, born at Cuenca, died at Viterbo, Aug. 24, 1867. As archbishop of Toledo, he took part in the contest with the Moors, and having saved the life of Alfonso XI., in the battle of Algesiras, he was ennobled, and in 1848 commanded in the siege of that place. Falling into disgrace with Peter the Cruel, he fled to Avignon, where Pope Clement VI. created him cardinal. In 1858 Innocent VII. sent him as legate to Italy, to regain for the papacy the control of Rome, and in the course of the years 1858-'62 he succeeded, under the most unfavorable circumstances, in again subjecting the ecclesiastical states to the papal power.

ALBOUZDJANY, ABOUL-VEFA-MOHAMMED, Arabian astronomer, born at Bouzdan in Khorassan, in the 10th century A. D. The Arabs called his principal work *Almagestus*, to liken it to the great work of Ptolemy.

ALBRECHT, WILHELM, a German agriculturist, and writer on agricultural science,

born in 1789. He was a distinguished pupil of Thaër, and first taught rural economy in Fellenberg's institute at Hofwyl. In 1820 he was invited to direct a school of experimental agriculture in Idstein, became perpetual secretary to the agricultural society of Nassau, and superintended the publication of their annals. He was also chosen by the government to give instruction in his department to a school of German teachers, that the results of his study and experience might be more generally communicated to the young peasantry. The school at Idstein was subsequently transferred to the domain of Geisberg, situated on an elevation in the vicinity of Wiesbaden. In this new position Albrecht organized an extensive system of labor, practising his pupils in all their theories, giving to every kind of vegetation that position in respect to soil and sun which was most advantageous to it, and publishing the results of his experiments in a weekly paper. Geisberg soon became the centre of agricultural interest and intelligence for the west of Germany. The difficulty which Albrecht found in making the students work upon the estate, caused him at length to keep the school open only during the 6 months of the cold season, to give theoretical instruction; and each year at the month of April the students were sent away to complete their course by labors in practical agriculture, either with their parents or with skilful farmers throughout the country. At their return in autumn, the students were obliged to give a satisfactory account of the employment of their time, and their interest in the school was maintained through the summer by a reunion of teacher and pupils during the few days of rest which succeeded the hay harvest. A library, for the accommodation of the students, and an agricultural museum, completed the means of instruction at the institution of Geisberg. Albrecht remained at its head until 1848, variously engaged for the improvement of agriculture in Germany, when he retired to an estate in Bavaria, on account of failing health.

ALBRECHTSBERGER, JON. GZORG, one of the first modern masters of counterpoint, born in the neighborhood of Vienna, Feb. 8, 1729, died in that city May 7, 1809. He was a pupil of the organist, Mann. In 1772 he was made court organist, a member of the academy of music, and in 1792 organist in St. Stephen's church in Vienna. Beethoven and Seyfried were his pupils in counterpoint.

ALBRET, a chateau which gave a name to one of the noblest families of France.—JEAN D'ALBRET, king of Navarre, lost his crown in 1512, and sought aid from Louis XII. of France, who sent an army to his aid under the duke of Valois, afterward Francis I. He was compelled to retire by the Spanish forces, and the unfortunate Jean was driven into the French portion of his kingdom.—HENRI D'ALBRET, his son, endeavored to regain Pampeluna. He was taken prisoner at the battle of Pavia, but es-

caped from prison and married Marguerite de Valois.—JEANNE D'ALBRET, his daughter and heiress, was mother of Henry IV.

ALBRIC, a learned British physician and philosopher, who flourished in the 11th or 12th century. Bayle enumerates several works of his, one of which, *De Deorum Imaginibus*, has been published.

ALBUCASIS, BUCHASIS, or BULOHASIM, Arabian physician, born near Cordova, and died in that city about A. D. 1006. He is known only by his work on *materia medica*, *Al Tassirif*. A manuscript of this work is to be found in the French national library, but it has never been published entire. It is divided into 2 parts, each of which comprises 15 departments; it treats of anatomy, physiology, dietetics, and of medical matters, internal and external, theoretical and practical. The surgical part has been translated into Latin, and constitutes the most valuable authority upon the surgical science of the Arabs.

ALBUERA, a village and rivulet in the Spanish province of Estremadura, about 12 miles S. E. of Badajos. In the spring of 1811, the British laid siege to Badajos, then in the hands of the French, and were pressing the fortress very hard. Beresford, with about 10,000 British and Germans, and 20,000 Portuguese and Spanish troops, covered the siege at Albuera. Soult advanced with the disposable portion of the army of Andalusia, and attacked him May 16. The English right was posted on a rounded hill, from which a saddle-shaped prolongation extended along the centre and left. In front the position was covered by the Albuera river. Soult at once recognized this round hill as the commanding point and key of the position; he therefore merely occupied the centre and left, and prepared an attack *en masse* upon the English right. In spite of the protestation of his officers, Beresford had posted nearly all the English and German troops on the centre and left, so that the defence of the hill devolved almost exclusively upon Spanish levies. Accordingly, when Soult's infantry advanced in dense concentric columns up this hill, the Spaniards very soon gave way, and the whole British position was at once turned. At this decisive moment, after Beresford had several times refused to send British or German troops to the right, a subordinate staff officer, on his own responsibility, ordered the advance of some 7,000 English troops. They deployed on the back of the saddle-shaped height, crushed the first French battalions by their fire, and on arriving at the hill, found it occupied by a not very orderly mass of deep columns, without space to deploy. Upon these they advanced. The fire of their deployed line told with murderous effect on the dense masses; and when the British, finally, charged with the bayonet, the French fled in disorder down the hill. This supreme effort cost the British line four-fifths of their number very near in killed and wounded; but

the battle was decided, and Soult retreated, though the siege of Badajos was raised a few days afterward.

ALBUFERA, the name of various lagoons in the neighborhood of Valencia, on the southern coast of Spain. They are partly dried up in summer, and are a resort for wild fowl, whose capture is a source of revenue. Napoleon created Suchet duke of Albufera, on account of the victory obtained over Blake; and the Spaniards afterward granted the revenues of this district to Wellington.

ALBUM, a Latin word, signifying something white. Several public officers of old Rome, such as the prætor and high priest, had a tablet or tablets of white, on which they recorded interesting events. Among the later Latin writers we hear of an album of the citizens. In the middle ages we find album and albo used for a register of saints, a muster-roll of soldiers, or any other catalogue of names. In our times and in the English language, it is a book kept by ladies, for the most part, in which they ask their friends, male and female, to write verses. From the times of the Provençal courts of love and the troubadours, it was part of the accomplishments of a knight and a gentleman to be able to indite a sonnet to his mistress's eyebrow; and thus album verses, which great poets are in the habit of sneering at, are no doubt the direct lineal heirs of the fugitive pieces of the troubadours and troverses, and the sonnets of Sir Philip Sidney and Spenser.

ALBUMAZAR, a celebrated Arabian astronomer, who flourished in the 9th century. He was a native of Balkh in Khorassan, and commenced the study of astronomy at the age of 47. His most important writings are an "Introduction to Astronomy," and the "Book of Conjunction," of which two Latin translations have been published.

ALBUMEN (Lat. *album*, white, *ovum*, egg, in its most familiar form, the white of an egg, whence its name), an animal substance, which is found in the serum of the blood, and in the lymphatic fluids. It constitutes the principal part of the skin and membranes, and muscles. Its peculiar property is that it coagulates when heated to a temperature from 140° to 165°, becoming white and insoluble in water, and losing its transparency. It is also coagulated by alcohol, most of the acids, and several metallic salts; while an alkaline salt, as carbonate of soda, prevents this change; and in dilute caustic alkali the coagulated albumen is soluble. Corrosive sublimate forms with it an insoluble compound, and is an excellent test for detecting the smallest quantity of it in solution. The white of an egg is therefore recommended as an antidote to this poison. It is stated that the life of Thénard the chemist was saved by his immediately resorting to this remedy, after swallowing by mistake a solution of corrosive sublimate.—The composition of albumen of the white of an egg, is stated by Dumas to be, carbon, 5.337; hydrogen, 7.10; nitrogen, 15.77; and oxygen,

23.76; of the serum, or thin part of the blood of man, 0.06 less of carbon; 0.19 more of hydrogen; 0.07 less of nitrogen; and 0.07 less of oxygen. Albumen of flour contains 0.87 more of carbon, 0.01 more of hydrogen, 0.11 less of nitrogen, and 0.26 less of oxygen, than that of the egg. The albumen of the egg also contains a little mucus, soda, and sulphur; the latter uniting with hydrogen forms sulphuretted hydrogen, which tarnishes silver.—Albumen and gelatine both exist in flesh, and both are nutritious. By boiling meat, gelatine is dissolved, and goes into the soup. Albumen is coagulated in hot water, and remains with the meat. Hence, roast meat, which retains both, should be more nutritious than boiled meat.—Albumen is also the name of a substance in plants, which has some of the leading chemical characters of animal albumen. It is found in the seeds between the embryo and the skin of the seed, and is the most nutritious part of the plant. The grain of wheat is this albumen, and so is the meat of the cocoa-nut. It seems to be intended as the first food of the embryo plant, and in many species, as the turnip, pea, and bean, it is absorbed with the growth; while, in others, a portion only is taken up by the plant, and a residue left. This substance is never found possessing poisonous qualities, however poisonous the plant from which it is obtained.—Besides forming the nutritious portion of most articles of food, albumen is used in various forms as a delicate food for infants and invalids, and is prescribed as a medicine in cases of chronic inflammation of the stomach,—the white of eggs well beaten, and passed through a filter, to be mixed with water and sweetened. In dressing burns, albumen, in the form of white of eggs, is an excellent application—the eggs to be beaten up and mixed with powdered alum or liquid acetate of lead, in which the bandages are to be soaked. From its property of coagulating by heat, albumen is of value for clarifying liquids and syrups. It is used in the form of blood, which is a cheap source of it. The albumen coagulates and entangles the impurities, which rise together as a scum.

ALBUMINURIA (BRIGHT'S DISEASE). The existence of albumen in the urine as a concomitant of certain cases of dropsy, was known to Dr. Blackall, and dwelt upon by him in his well-known work, but it is since the researches of Dr. Bright have made known the connection between an albuminous condition of the urine and organic disease of the kidneys, that the term albuminuria, as indicative of this connection, has come into general use. It is not probable, however, that it will long be retained in its present signification in any nomenclature which pretends to scientific accuracy; it includes under one head several different diseases marked by distinct and easily recognized changes of structure; it is significant not of any one of the changes of structure which are produced, but of a symptom which although characteristic, is not only present in very different

degrees, but is often for considerable periods altogether absent. Still, in the present imperfect state of our knowledge of the organic diseases of the kidneys it forms a convenient head, under which may be placed some account of what is known of those diseases which are attended by the imperfect elimination of urea from the blood, and by the presence, persistent or occasional, of albumen in the urine. The mere presence of albumen in the urine must not always be looked upon as indicative of albuminuria. Whenever blood is contained in the urine, the appropriate tests will of course detect the existence of albumen, and the presence of stone, whether in the kidney, the ureter, or the bladder, malignant diseases of the urinary organs, and purpura hemorrhagica, may all give rise to bloody urine. In the same manner the presence of pus, whether it come from the kidneys, as in pyelitis, or from the bladder in inflammation of that organ, will cause the urine to give, on the application of heat and the addition of nitric acid, the precipitate characteristic of albumen. After the application of a blister the urine is occasionally albuminous from the irritation caused by absorption of the active principle of the Spanish fly (cathartidine), and its effect upon the urinary passages. In persons of gouty habits the irritation caused by the elimination of uric acid, sometimes renders the urine albuminous, and according to Rayer and Dr. Owen-Rees, this condition may persist for a long period, independent of any organic change. With these exceptions, which a careful consideration of the history of the case, and of the microscopic appearances of the urine, will in general enable us to easily recognize, the persistent or repeated presence of albumen in the urine, must be looked upon as indicative of albuminuria. Albuminuria may be either acute or chronic; it may occur suddenly in those we have every reason to believe were previously in good health, and terminate either in recovery or the chronic state; or it may come on slowly and insidiously, being recognized only when the kidneys have already undergone irreparable and fatal structural change.—*Acute Albuminuria, Acute degenerative nephritis* of Johnson, *Acute renal dropsy*. The disease sometimes commences with a chill, followed by more or less fever, with a dry skin, furred tongue, and frequent pulse; in other cases the attention of the patient is attracted by the swollen state of his countenance; the swelling rapidly extends and becomes general; at the same time the urine is greatly diminished in quantity, is of a dark color, looking as if impregnated with smoke, or red, and evidently containing blood. There is more or less dull pain about the loins, with a dry pallid skin, great thirst, disinclination for food, often nausea and vomiting. Sometimes, though happily not often, there is complete suppression of urine. In such cases, as a rule, fatal coma quickly supervenes, though the writer has seen an instance in which, in a young woman, complete

suppression of urine existed for 7 days, and coma only came on a few hours before death; previously, drowsiness, from which she could readily be roused, and slight hysterical symptoms, were the only signs indicating affection of the nervous system. In the course of the disease, effusions into the cavities of the pericardium, the pleura, or the peritoneum, with or without inflammation of those membranes, are apt to occur, or epileptic convulsions may come on, often ending in fatal coma. The urine has commonly a specific gravity of from 1.015 to 1.025—not varying much from its ordinary standard; when tested by heat and nitric acid, it shows the presence of albumen in large quantity, occasionally the whole of the fluid becoming converted into a jelly-like mass. When examined under the microscope, the sediment deposited by the urine, on standing, is found to consist of blood corpuscles, of renal epithelium, and of small fibrinous casts of the convoluted uriniferous tubes containing entangled in them epithelial cells and blood globules. After the disease has continued some weeks in adults, the epithelial casts, as they are termed by Johnson, sometimes contain a few oil globules; if the patient recover, these gradually disappear as convalescence comes on. Should, however, the casts containing oil globules increase in number, while those which contain epithelial cells diminish, there is great reason to fear that the disease will become chronic and the kidneys undergo fatty degeneration. On post-mortem examination the kidneys are found to be enlarged, and gorged with blood. Sometimes their exterior is pale,—and this paleness extends through the cortical substance,—particularly in the cases which follow scarlet fever. Microscopic examination shows many of the convoluted tubes to be crowded with epithelium, especially in those parts of the cortical substance which appear pale to the naked eye.—Of the causes of acute albuminuria, exposure to cold, particularly when the body is exhausted by fatigue, by recent illness, by an unwholesome or unsuitable diet, or by excessive indulgence in alcoholic liquors, is undoubtedly the most important. The actions of the skin and of the kidneys are always to some extent vicarious of each other. When there is free perspiration the quantity of urine is diminished; in cold weather it is increased. In these cases, however, it is only the watery parts of the excretion which are interfered with; the skin and the kidneys continue each to free the blood from the excrementitious matters which it is its peculiar function to separate. When disease follows exposure to cold it is probable that the entire function of the skin is suspended, that excrementitious materials which should be separated from the blood are accumulated in that fluid, and that the weight of the disease falls upon some organ predisposed to it from congenital or acquired weakness. Other diseases, in which the blood is in an altered condition, are occasionally attended or followed by albuminuria;

thus repeated instances of its occurrence have been met with in connection with acute rheumatism, typhus fever, erysipelas, and purpura. Is it the elimination of blood poison by the kidneys which produces the albuminuria? During the desquamative process in scarlet fever, the patient is liable to acute albuminuria. Accurate observers have found that in most cases albumen can, at some time of the latter period of the disease, be discovered in the urine. If at this time the patient be incautiously and unduly exposed to the influence of cold, disease of the kidneys attended by dropsy is apt to follow. The attack differs in no respect except its cause, from the acute albuminuria which occurs under other circumstances; it has similar symptoms, and post-mortem examination reveals similar appearances. In its progress, however, the disease is more amenable to treatment, generally terminating in recovery, without leaving the system predisposed to a second attack; still, occasionally the complaint becomes chronic and the kidneys undergo degeneration. The strumous diathesis predisposes to the disease; cases of scarlet fever in children of that diathesis have always to be watched most carefully, and from the ordinary causes of albuminuria the strumous suffer in large proportion.—It is easy to understand the pathology of the disease. Not only is the urine greatly diminished in quantity, but what is passed consists in some measure of blood, and of the unaltered serum of the blood which escapes directly from the ruptured vessels of the kidney; it is not only taken as a whole, but relatively, deficient in urea. The urea which should be eliminated accumulates in the blood and poisons that fluid. The serum of which the albumen is drained off by the kidneys, becomes deficient in that substance, and of lower specific gravity. The pallor of the complexion shows that the blood is deficient in coloring matter, and where the disease has lasted a short time, this is confirmed by direct examination, the blood globules being in a marked manner diminished. The circulation of a poisoned blood throughout the body causes that liability to secondary diseases, to effusion into or inflammation of the serous membranes, to pneumonia and bronchitis, to epileptic convulsion and coma, which so strikingly characterize the complaint; the irritability of the stomach, the nausea and vomiting, are in a great measure owing to the same cause, indeed there is not an important organ whose functions may not be interfered with. While acute albuminuria is always a serious disease, still in a large proportion of cases we can look forward hopefully to the recovery of the patient; yet it must always be borne in mind that at any time secondary disease may be lighted up which will seriously complicate the case and increase the danger. The existence of the strumous diathesis in a marked degree, or of debility from previous illness, are likewise exceedingly unfavorable circumstances. The more recent the disease, the better is the

prospect of recovery, while the persistent presence of albumen in the urine after a certain time, leads us to fear the occurrence of chronic degeneration. Dr. Johnson states that he has seen instances of complete recovery after the disease had lasted for four months. The albuminuria following scarlatina, generally terminates favorably, and there is no tendency to a return of the disease. When convalescence commences, the urine becomes more copious and pale, and for some time is discharged in large quantity, while the albumen gradually diminishes; but the patient cannot be considered as safe, so long as any trace of albumen can be detected in the urine, or any epithelial casts are discovered under the microscope.—The treatment of acute albuminuria is sufficiently simple. The patient should be clothed in flannel, and if possible confined to bed; the room should be of a comfortable and equable temperature, and the patient should be most sedulously guarded against exposure to cold currents of air. If there is pain in the loins and the strength admit it, leeches or cupping glasses should be applied over the region of the kidneys, and this may be repeated several times, but general bleeding is very rarely called for. To restore the functions of the skin, the warm bath, or, what is much better, the hot-air bath, should be employed daily; in serious cases great benefit is derived from using the hot-air bath several times a day. Diaphoretic medicines may at the same time be given; when it is well borne, the administration of tartar emetic in small and repeated doses is often attended with happy effects, or Dover's powder may be given from time to time, provided there is no tendency to coma. The bowels are an emunctory not less important than the skin, and these should be freely acted on; the compound jalap powder may be so administered as to produce several free operations daily, or saline cathartics, as the sulphate or citrate of magnesia, the tartrate of potash and soda, &c., may be given. When the effusion is great, elaterium, if the patient's strength is sufficiently good, may be resorted to. Diuretics as a class are contra-indicated, though the infusion of digitalis may sometimes be found useful: if counter-irritation be resorted to, mustard or ammonia should be employed, since cantharides or turpentine, if absorbed, would increase the irritation of the kidneys. Mercury should never be employed except as a purgative, and even then its use is not always free from danger. In all cases of albuminuria there is an undue susceptibility to its constitutional influence, and, when this is produced, it is sometimes violent and uncontrollable. Throughout the course of the disease, the diet should be unirritating and digestible; any excess in this respect may be attended with bad consequences. When convalescence is established, the preparations of iron will be found exceedingly useful, improving the condition of the blood and the general strength. Until all traces of albumen are removed from

the urine, the greatest care should be taken to maintain an equable temperature of the body, and to avoid all exposure to currents of air.—*Chronic Albuminuria.* At least three distinct organic changes in the kidney: 1st, that form of disease to which the name of Bright's kidney has been restricted by some, the chronic desquamative nephritis of Johnson, the gouty kidney of Todd; 2d, the waxy; and 3d, the fatty kidney, concur in producing the aggregate of symptoms, to which the name of chronic albuminuria has been given. During life, these different alterations can only be discriminated by the microscopic examination of the urinary sediment, and by percussion, through which the size of the kidney may be determined; their causes, their symptoms, their mode of termination, are similar if not identical. More extended observation may teach us distinctions more essential, but at present, practically, they may be considered as one disease. The approach of the disease, when not the sequel of an acute attack, is masked and insidious, rarely awaking attention until fatal progress has been made: indeed, persons not suspecting themselves ill, have in repeated instances died suddenly of what has been supposed to be an apopleptic attack, and post-mortem examination has shown the kidneys and not the brain to be the seat of mischief. In general, however, the symptoms are sufficiently well marked to attract the attention of the observing physician. The patient loses flesh and strength, the appetite fails, or, if good, there are flatulence and other dyspeptic symptoms; after a time the color is lost and the patient has a pallid, sallow, or waxy look; the skin becomes dry; in the morning, on rising, swelling beneath the eyes is noticed, and at night the ankles are oedematous. There is some pain in the back, but it is not commonly so great as to attract attention. If the patient be questioned, it will be found that there is some irritability of the bladder; he has, contrary to his wont, to rise at night to pass urine, although there is no evidence of disease of the bladder itself. The urine is sometimes passed in large quantities, occasionally the amount is much below the average; it is pale and of low specific gravity, varying commonly from 1.004 to 1.012. Tested by heat and nitric acid for the presence of albumen, this substance is found to vary greatly in amount in different cases, occasionally being present in large quantity, while often only a trace of its existence is discovered; sometimes it disappears altogether, and will only be discovered after repeated examinations. In the course of the disease ascites is apt to occur, and this often becomes so great as to be the principal source of suffering. With this the anasarca increases, and the whole cellular tissue is infiltrated and swollen with serum. As in the acute form of the disease, effusion, with or without inflammation, may occur into the cavities of the pericardium and pleura, as well as into that of the perito-

næum. A tendency to prolonged somnolence is often observed, and this may lapse into coma, or into coma alternating with epileptic convulsions. Bronchitis, dependent upon blood poisoning, is apt to occur and to prove severe and intractable; pneumonia, too, sometimes comes on insidiously, and may run on rapidly to a fatal issue. Rheumatism, particularly a chronic and unmanageable form of the disease, is not unfrequent, and so often is chronic rheumatism connected with albuminuria, that Dr. Christison states that he never meets with a case of chronic rheumatism without making particular inquiry into the condition of the urine. In a great majority of the cases of chronic albuminuria, more or less hypertrophy and enlargement of the heart are met with. In some instances the disease of the kidney may be secondary to that of the heart, but in the greater number, we must look for the cause of the heart disease, to the poisoned and impoverished condition of the blood, produced by the affection of the kidney. It is to this condition of the blood that the number, variety, and fatality of the complications of the disease of the kidneys are to be attributed. The principal alteration in that fluid would seem to be chiefly the diminished amount of the blood globules, the hæmatin, according to Dr. Christison, sometimes reaching only $\frac{1}{3}$ of its natural quantity, and the presence of the retained urea.—The duration of the disease varies very greatly in different cases. Among the laboring classes whose avocations lead them to exposure to the inclemencies of the weather, and in whom sickness brings too often privation of comforts and mental depression, death commonly occurs after no very protracted period; but among those whose position enables them to avoid fatigue and exposure, and who are more on their guard against the first invasion of disease, chronic albuminuria often lasts for years, leaving its victims a very fair measure of the enjoyments and labors of life; their situation, however, is always precarious, and serious or fatal disease may at any moment be lighted up by apparently trivial circumstances.—Where it has not succeeded to the acute disease, intemperance in eating and drinking, but especially in the use of fermented and distilled liquors, is the great cause of chronic albuminuria; the kidneys are the organs by which mainly the blood is freed from the presence of foreign and hurtful substances, and constantly over-stimulated in the performance of their function, they take on diseased action. One form of the disease is so commonly associated with the gouty diathesis, that it has been named by Dr. Todd the gouty kidney; but the same form of disease often is found in those who have never known gout. It occurs most frequently in those of strumous habits, and at least in hospital cases, it is no uncommon attendant upon consumption. Exposure to cold and wet, fatigue, want, and mental anxiety, may all be put down as occasional causes, yet many cases occur in which we are unable to trace

the origin of the complaint.—In the so-called gouty kidney the organs in advanced stages of the disease are very much contracted, so as not to be more than $\frac{1}{3}$ or $\frac{1}{4}$ of their natural size. They have a granular appearance; the capsule is denser and whiter than natural, and is peeled off with great ease. On cutting open the kidney the wasting is found to have taken place mainly at the expense of the cortical substance, which is contracted and atrophied, and presents the same granular appearance which is observed upon the surface. In these cases on microscopic examination many of the tubes are found to be empty and entirely denuded of their epithelial lining. In the waxy kidney the organ is enlarged sometimes to twice its natural size. It is of a pale buff color, and presents when cut no trace of granulations; on examination under the microscope the tubes appear to have lost their epithelial lining, and to be filled with an unorganized deposit which exhibits when squeezed out the form of waxy casts, identical with those which microscopic examination detects in the urine. The fatty kidney is enlarged, the surface of the organ is smooth and pale, or more commonly mottled by red vascular patches, and its texture feels softer than natural. On microscopic examination the convoluted tubes are found filled with oil globules.—In chronic albuminuria, where neither dropsy nor other formidable complication demands attention, the treatment consists rather in hygienic measures, in a careful direction of the patient's clothing, diet, and exercise, than in active medication. Flannel should always be worn next the skin, and exposure to wet and cold carefully shunned; all inordinate exercise, whether of mind or body, and all excess of every kind, should be forbidden; the diet should be nutritious, but moderation and regularity must be insisted on; all fermented liquors should be avoided, though where long habit has rendered their use necessary, the patient may be left to choose the article which best agrees with him. As a general rule, distilled spirits agree better than either wine or malt liquors. There is sometimes in this disease a strange choice exercised with regard to particular articles of diet. An intelligent medical man, suffering under albuminuria, declared that while he could take a little rum, brandy and most kinds of wine poisoned him; he could eat rare-ripe peaches, while, though equally fond of both, the yellow peach always produced irritation of the kidneys. In these cases a long sea voyage is often of great service to the patient, restoring his vigor in a surprising degree. Where dropsy supervenes, the use of the hot-air bath is often highly beneficial in causing the absorption of the effused fluid; if the patient's strength admit, elaterium may be employed, but it is apt to provoke vomiting or bring on diarrhoea; a pill composed of equal parts of scammony, squills, and digitalis, given so as to produce two or three stools daily, is often useful, particularly as it acts at the same time as a

diuretic. Diuretic remedies may be employed with advantage, and of these the acetate of potash, given in full doses, is perhaps the best. In the pneumonia and the inflammation of the serous membranes that are apt at some time to supervene, care must be taken not to carry the antiphlogistic regimen too far. General bleeding is not well borne, and even topical blood-letting is often a doubtful remedy. As in the acute form of the disease, mercury is a dangerous agent, being apt to provoke violent and uncontrollable salivation. If the patient has a tendency to coma, or if epileptic convulsions supervene, wet cups to the loins, the internal administration of croton oil, and counter-irritation to the nucha, by means of a mustard plaster, are the remedies most to be relied on. Where the drain of albumen is very considerable, gallic acid appears sometimes to be of service in moderating it. Throughout the disease the preparations of iron are beneficial, probably by improving the quality of the blood, and their use need not interfere with the exhibition of other remedies. They may be often given with advantage along with a mild vegetable bitter, such as the cold infusion of columbo or gentian.

ALBUQUERQUE. I. Affonso d', surnamed the great, also the Portuguese Mars, one of the first Portuguese conquerors, and second viceroy of India, born in Alhandra, in the province of Estremadura, in 1452, died at sea, in the bay of Goa, Dec. 16, 1515. He was related to the ancient kings of Portugal, and brought up at the court of Joao II., where his father, Gonzalo, occupied a distinguished position. Affonso's enthusiasm was kindled by the brilliant exploits of Diaz and Vasco da Gama, and entering the navy at an early age, he fought at the side of Pacheco, Almeida, Acunha, and the other gallant sailors, to whose indomitable enterprise and courage Portugal was indebted for her possessions in Africa, and who afterward achieved the conquest of India, in which Albuquerque took a prominent part. He sailed in 1508, with his cousin Francesco, to India, by the newly discovered Cape of Good Hope passage. There the adventurers rendered important services to the king of Cochin-China, and gained permission to form a settlement in his dominions, which was the commencement of the Portuguese power in the east. They subsequently returned to Portugal, and Albuquerque next accompanied Tristan da Acunha on an expedition to the eastern coast of Africa. They carried on a piratical warfare for some time against the Arabs, and other inhabitants of that coast, until Albuquerque, tired of such petty exploits, determined on an attempt against the island of Ormus, once the seat of the pearl fishery, and a thriving place. He was at first successful, but the Persian commander rallying his forces, repulsed him and drove him back to his ships. Being now joined by three more vessels, he sailed for India, and after a personal contest with the governor, whom he was authorized to supersede, but who refused to

recognize him, and threw him into prison, he was, on the arrival of the grand marshal of Portugal, appointed commander-in-chief. A project of the government of Portugal, at that epoch, was the diversion of the Red sea trade into their own hands, by the seizure or settlement of the coasts, and one extravagant plan, which Albuquerque afterward suggested to the king of Ethiopia, was to divert the river Nile into the Red sea. At present, however, he on various pretences contrived to avoid obedience to orders from home, and made his way to Goa, which he seized in the absence of Idalcan, the ruling prince, on an expedition into the Deccan; but his force was too small to retain his conquest, and Idalcan having gathered an army, besieged him, drove him out of the town, and forced him to retire to his ships, which were unable to cross the bar in the face of the north-east monsoon. Albuquerque contrived, however, by skill and patience, to avoid any serious injury from the artillery of the enemy, and on a favorable wind made his escape, to return a second time, in Nov. 1510, when he made himself master of the city, and permanently established himself. He now went on a marauding expedition to Malacca, and succeeded in capturing and plundering the town, from which a booty so enormous was obtained, that the king's share, one-fifth, amounted to 200,000 gold cruzadoes, a sum equivalent to \$5,000,000, exclusive of naval stores, artillery, and other plunder. Eight Portuguese and 200 Malabar natives, were the forces with which this great enterprise was accomplished. After remaining a year at Malacca, he sailed for Goa, and was shipwrecked on his voyage, but he escaped with life, and on reaching the city repulsed an attempt to recover the place made by Idalcan, the native sovereign. His success struck such terror into the natives, that they submitted and left the Portuguese in peaceable enjoyment of their ill-gotten acquisitions. He had now no pretence for further disobedience, and in pursuance of peremptory orders from home, sailed with an expedition up the Red sea, and made an attack upon Aden, in which, however, he was repulsed. The main object of the expedition was a failure, but on his return (1507) he seized Ormus, of which the Portuguese retained possession until 1622, when Shah Abbas recovered it. Many attempts had been made by intriguers at home, jealous of his fame, to injure him, and more than one commander had been sent out to supersede him. He disregarded the orders of the court, and even had the audacity to send one of his intended successors, Vasconcellos, home again. He was, however, at length recalled (1515), and his health having suffered in the climate of the Red sea, and Persian gulf, his vexation at his disgrace so operated on his enfeebled frame, that he sank under it, and died in his 68d year. He was buried at Goa. His loss was deplored as a national calamity, and the king atoned for his ingrati-

tude toward him during his life, by the honor in which he held his memory after his death. In his personal habits he was moderate, and such was his reputation for inflexible justice, and determination to deal fairly by the people his arms had conquered, that half a century afterward, the natives, both Mohammedans and Hindoos, visited his tomb to pray for his protection against the extortions and oppressions of his successors. II. Affonso, natural son of the preceding, born near the village of Alhandra, in the province of Estremadura, in 1500, died at Lisbon in 1580. His baptismal name was Blas, but in honor of his father, he adopted that of Affonso, at the suggestion of King Emanuel, who seemed anxious, by favors showered upon the son, to retrieve the wrongs done to the man who was among the first to give the key to India to Portugal. He entered the royal navy at an early age, and when the king's daughter, Beatriz, celebrated for her melancholy fate, and the romantic passion which she kindled in the heart of the poet Ribeyro, left Portugal, the honor of commanding the vessel which brought her to the shores of Savoy, was conferred upon Affonso. Beatriz, ever bent on diffusing happiness, selected a wife for him in the person of Maria da Noronha, who was not only by her distinguished position at the court, a fit partner for the son of the great Albuquerque, but brought him very substantial advantages in the shape of a considerable dowry. Under Joao III. he became minister of finance, and in 1569, when he was mayor of Lisbon, he distinguished himself by the display of much public spirit in arresting the progress of the pest, which then desolated the country. He founded a hospital in the village of Azeitao, near Setuval, in his native district of Estremadura, the remains of which still existed in the 18th century. He published, in coöperation with his father, the celebrated *Commentarios do grande Affonso d'Albuquerque*. Of the original edition, there are, beside a copy in the royal library of Portugal, only 2 copies extant. A 2d edition, to be found in the *Bibliothèque Nationale* of Paris, appeared in 1576, which, however, is considered inferior to a subsequent one brought out in 1774 by the royal publishing establishment of Lisbon, in 4 vols. in 8vo. Affonso's only child was a daughter, who married a Portuguese nobleman. In the present century, the name of Albuquerque has reasserted its ancient glory in the person of III. Alonzo, a Spanish general, supposed to have sprung from the celebrated Portuguese family, who, at the head of only 4,000 men, frustrated in 1810 the attempts of the French army to seize Cadiz. To Soult, who summoned him to surrender, he gave the memorable reply: "We shall not lay down our arms until we have reconquered our liberties, and we scorn your attacks." Afterward, he was appointed ambassador at London, but his death, which took place there in 1811, soon took him away from this new field of activity.

ALBURNUM, in plants, is that part of the stem of trees which timber-merchants call sap-wood, in contradistinction to heart-wood. It is the newly formed wood, lying next below the bark, and is a delicate fibrous tissue, the principal use of which is to convey the crude sap from the roots to the leaves. It is, therefore, a necessary part of all exogenous trees. It is, however, of a very perishable nature, and only loses that quality when, being enveloped within exterior layers of the same substance, it becomes combined with other secretions, which solidify it and convert it into duramen, or heart-wood. Most plants, and all trees valuable as timber, have the sap-wood and heart-wood distinct, the one forming the external layer, the other the core. Some, however, consist of alburnum only, and are known as white-wood, which are useless, or of use only for the most temporary purposes.

ALCAÇOBA, SOTOMAYOR SIMON, a Portuguese navigator, died in 1585. He entered the service of Charles V. in 1522, and received the command of a vessel sailing to the West Indies. In 1524 he was appointed one of the arbitrators to fix the boundary line between the colonial possessions of Spain and Portugal, but his appointment was vetoed by the king of Portugal, owing to his having left the Portuguese and entered the Spanish service without special permission. After various unsuccessful enterprises, he set out on Oct. 8, 1584, from Gomera, with 2 vessels equipped at his own expense, and a crew of 250 men, and on Jan. 17, 1585, reached the Patagonian coast. In the straits of Magellan, however, stress of weather obliged him to retrace his steps and to land at Puerto de Lobos, where, after having penetrated into the interior of the country, sickness compelled him to resign the command to his lieutenant Rodrigo de Isla. A mutiny broke out, and Alcaçoba himself was assassinated and his corpse thrown into the sea. After his death his enterprise was abandoned, and Rodrigo, having reestablished his authority and punished the mutineers, returned with the vessels to the occidental colonies of Spain.

ALCÆUS OF MITYLENE, a Greek lyric poet and warrior, lived partly in the 7th and partly in the 6th century, B. C. He served in the war which took place in the 42d Olympiad, between the Athenians and Mityleneans for the possession of Sigeum. In the fends which raged between the nobles and people of Mitylene, he engaged ardently as a partisan of the former. After his faction had been vanquished, they were driven into exile, and the poet, sharing their fallen fortunes, had to spend the rest of his days in banishment. His poems, originally consisting of 10 books, are said to have exhibited the Æolian lyric in its highest perfection, but only fragments have come down to us. Some were warlike or patriotic; some bacchanalian or erotic songs; while others were hymns, or epigrams, or poems addressed to individual friends. His poetry is always impass-

sioned. Horace admired and imitated him. The best collection of the extant fragments of this poet will be found in Bergk's *Poeta Lyrici Graeci*, Leipzig, 1852.—There were 2 other poets of the same name, of whose writings some fragments also remain, but they are of little importance.

ALCAFORADA, **MARIANNA**, born of an illustrious Portuguese family, in the latter part of the 17th century, died at the end of the 17th or beginning of the 18th. She was known under the vague name of the Portuguese nun, from her supposed connection with a convent, and acquired some literary fame by a series of letters, originally addressed by her to the Chevalier de Chamilly, the object of her adoration, and eventually given to the public through the instrumentality of the chevalier, who was proud of her love, although he did not reciprocate it. Various editions of the "Portuguese Letters" have been published. That of Firmin Didot, 1824, edited by Don José-Maria de Sousa, Paris, the celebrated editor of the works of Camoens, is considered the most authentic.

ALCAIOS, in ancient poetry, a name given to several kinds of metre, and derived from Alcæus, the earliest known employer of them. The first kind consists of 5 feet, viz.: a spondee or iambic, an iambic, a long syllable, a dactyl, and another dactyl. Such is the following line of Horace.

Ehen; | fuga | oes | Postume | Postume.

The second kind consists of two dactyls and two trochees; as

Progeni | em viti | oel | orem. |

Beside these two, which are called dactylic alcaics, there is another less commonly used consisting of an epitrite, a choriambus, another choriambus, and a bacchius. The following is of this kind;

Cur timet fis | vum Tiberim | tangere eur | olivum?

The **ALCAIO ODE** or stanza consists of 4 lines; the first 2 of which are always alcaics of the first kind; the third verse is an iambic dimeter hypercatalectic, or 4 feet and a long syllable; and the fourth verse is an alcaio of the second kind. Horace uses this as frequently as the Sapphic. Here is a specimen:

Dux inquieti turbidus Hadriae
Nec fulminantis magna manus Jovis
Sed fractus illebaetur orbis
Impavidum ferient ruinae.

ALCAIDE, an executive officer among the Spaniards, Portuguese, and Moors, appointed to take charge of a castle or fort, or to superintend a prison.

ALCALA, a frequent name of towns in Spain, derived from the Moorish *El Khalaat*, the castle. They are usually qualified by some other local appellation. I. **ALCALA DE HENAREZ**, a town on the river Henares, in New Castile, Spain, Population about 5,000. It is celebrated for its university founded by Cardinal Ximenes, in 1499, which was long a famous school of law and divinity, but in 1807 was removed to Madrid. The Complutensian polyglot Bible was

issued from it at the expense of its illustrious founder, and some Hebrew MSS. were purchased for the purpose, which cost 7,000 gold crowns. It has a military school, a magnificent church, and a palace of the archbishop of Toledo. Alcala was the birthplace of Cervantes, the historian Antonio Solis, the naturalist Bustamante de la Camera, the emperor Ferdinand, brother of Charles V., and many other famous men. It was in possession of the Moors until the 12th century, when it was recovered by Don Bernardo, archbishop of Toledo. II. **ALCALA LA REAL**, a small town in the province of Jaen; population about 9,000. It was the scene of a victory by Sebastiani over the Spaniards, which resulted in the capture of Granada by the French in 1810.

ALCALDE, the title of a civil dignitary, either judicial or administrative—with which alcaide is sometimes confounded; alcaide, however, being a semi-military title. Both terms are probably derived from the Arabic word *cadí*. The *alcalde mayor* is a local judge who presides over the tribunals, and is distinct from the municipal alcaide or *corregidor*, who is not a lawyer. The *alcalde pedáneo* is a justice of the peace, and is elected by the people. *Alcaldes de casa y corte*, form a bench of judges for the trial of criminal or civil causes within certain circuits, to whom an appeal lies against the decision of any individual of their number. See **ALCAIDE**.

ALCAIMENES, a famous sculptor of Greece, in the 5th century B. C. He competed for the first place with his master Phidias, but unsuccessfully. With Polycletus they formed the triumvirate of eminent Grecian sculptors.

ALCAMO, a city of Sicily, about 23 miles S. W. from Palermo, having a population of 15,500. It contains several buildings of Saracenic architecture, and was probably founded by a colony of that nation.

ALCANTARA, a small town in Spanish Estremadura, near the Portuguese frontier; population 4,800. In history it is known as *Norba Cæsarea*. A beautiful six-arch bridge was built across the Tagus in the reign of Trajan, which gave its name to the place. Alcantarat signifies the bridge. During the Peninsular war this monument of the past was blown up by the British.—**ALCANTARA, KNIGHTS OF**, a Spanish military order. The knights of Alcantara take their origin from the knights of San Julian de Payrero, a small body of valiant Christians who banded together in the 12th century, bound by a vow to wage war continually against the Moors. In 1215 Alcantara, which had been in possession of the Moors, was recovered by Alfonso IX., and the grand-master of Calatrava being unable to undertake its defence, the duty was assigned to the brothers of San Julian, who changed their name to that of Alcantara. In 1492 the grand-master dying, Ferdinand the Catholic became administrator of the order, and united the office of grand master with the crown. The order has since been abolished. In addition to

the usual vows of the monk-soldier, the knight of Alcantara was bound to maintain the immaculate conception of the Virgin. After 1540 a change was made in the statutes of the order, which permitted the knights to marry.

ALCARAZ, a town in the old province of La Mancha, in Spain, now Albacete. The town has a population of 7,825. It contains the ruins of a strong castle, and a fine Roman aqueduct. The name is derived from the Arabic.

ALCARRIA, a district of Spain, on the northern borders of New Castile. Its name is derived from the Arabic, and signifies a collection of farm houses, appropriately enough, as it is made up of a number of small villages. The inhabitants are all landed proprietors, and although there are few wealthy men among them, yet poverty and want is unknown. Though the country is mountainous, the hill sides afford abundant pasturage for the numerous flocks of Merino sheep, when the burning heat has scorched the herbage of the plains. The forests of oak are converted into charcoal, which is sold at Madrid. The meats, game, fish and honey, are of the most delicious flavor. The vine and olive are cultivated. The Tagus, Guadiana, and other streams, pass through and irrigate its valleys.

ALCAVALA, or ALCABALA, a duty imposed in Spain and its colonies on all transfers of property. It was originally laid in 1341 as an ad valorem tax of 10 per cent., and was afterward increased to 14 per cent. It was even levied on such movable chattels as manufactured commodities, and was attached to all wholesale transactions. This oppressive impediment to the operations of trade continued over the greater part of the Spanish realm until swept away by Napoleon in 1808. Catalonia and Aragon purchased from Philip V. an exemption from the alcavala by the substitution of a tax on rents and on incomes. On this account Catalonia and Aragon have always been in a comparatively flourishing condition.

ALCAZAR. I. ALCAZAR DE SAN JUAN, a town in Spain, in the diocese of Toledo, the ancient Aloe. It has manufactories of soap, saltpetre, and gunpowder. Pop. 7,500. II. ALCAZAR DO SAL, a town in Portugal, with an impregnable castle built on the top of a rock. It takes its name from the salt which is here produced in great quantities. III. ALCAZAR KEBIR, a city of Barbary, formerly the capital of a part of Fez, and the place at which Almanzor in 1180 collected his army and munitions of war, for the purpose of invading Grenada to recover the lost throne of that kingdom. IV. ALCAZAR, a royal Moorish palace at Seville, in a state of fine preservation, and remarkable for its beauty, although inferior to the Alhambra.

ALOEDO, ANTONIO DE, a Spanish officer and writer, author of a work on the West Indies, Madrid, 1786, now very rare, having been suppressed by the Spanish government on account

of the information it might give to foreign powers. It has been translated into English by G. A. Thompson.

ALCESTER, a market town in the western part of Warwickshire, at the junction of the Arrow and the Alne, in 52° 18' N. lat. and 1° 53' W. long. Population in 1851, 2,037. Needles and fish-hooks are manufactured here, but the former in much smaller quantities than they were forty years ago, when 600 persons were employed in making them. Alcester was at one time famous for its wheat fair. It is a very old town, probably once a Roman station.

ALCESTIS, or ALOESTIS, in the legends of classical Greece, was the daughter of Pelias, and wife of Admetus, king of Phæra in Thessaly. Apollo, wishing to do Admetus a kindness, had obtained from the Fates the promise that, when the time of the death of Admetus should come, his life should be prolonged, if either his father, mother, or wife would become his substitute. When, accordingly, this time arrived, Alcester devoted herself in his stead, and saved her husband's life at the expense of her own. Hercules, however, being a friend of Admetus, compelled death to render back his prey, and Alcester was restored to life. This story is the subject of the "Alcester," one of the best tragedies of Euripides.

ALCHEMY, a word used with various significations. It is generally understood to express the "occult art," or the changing by some chemical process the base metals into the most precious. Some give it a more comprehensive signification, and trace in the name that of the modern science which succeeded it. The distinguished English chemist, Dr. Thompson, goes still farther, and calls it "the knowledge of the substance or composition of bodies; so named from the Arabic substantive *Kayamon*, that is, the substance or constitution of any thing—from the root *Kama*." During the many centuries in which the word was in use, its signification no doubt fluctuated with the different investigations peculiar to the times, which were by no means limited to those visionary researches with which the name is now almost exclusively associated; but comprehended in their field whatever related to medicine and the properties of natural objects; and, moreover, engaged the attention of the most learned men; and led to the discovery of many important facts in chemistry and medicine. This dawning science, then, as we will term it, first arose, it is believed, among the Arabs. The Arabic prefix *al*, which signifies *the*, adds to the probability of this belief. The works of Geber, an Arabian physician, who lived in the seventh century, are still extant; their genuineness, however, is not fully established. They treat of medical and chemical subjects, and describe apparatus of kinds now in use. From the absurd and mystical phrases in his works, Dr. Johnson traces to his name the origin of the word gibberish, anciently written *geberish*. From Arabia, alchemy

passed into Europe; and from the eleventh to the sixteenth century inclusive, it was in the highest estimation, and numbered among its votaries many men, whose names are still distinguished for their learning. In this period were discovered many valuable chemical compounds, and the uses to which they can be applied. Roger Bacon, who was born in 1214, in Somersetshire, though thoroughly indoctrinated in the arts and mysteries of alchemy, wrote against the absurdity of believing in magic, necromancy, and charms. He appears to have been acquainted with gunpowder, and may have invented it. In his *Epistola de Secretis Operibus Artis et Naturæ et de Nullitate Magiæ*, is the following sentence: *Sed tamen salis petra LURU. VOPO. Vir can. Vtriet sulphuris; et sic facias tonitrum et coruscationem, si scias artificium.* If the enigmatical terms indicate charcoal, we have here all the constituents, and some of the effects of gunpowder described. Basil Valentine, a Benedictine monk of Erfurth in Germany, appears to have been possessed with the true love of science. He discovered antimony, and was familiar with the medicinal preparations of it now in use. His works describe correctly the modes of preparing nitric and muriatic and sulphuric acids.—It must, however, after all, be admitted that the principal objects to which the labors of the alchemists were directed, were not those of genuine science. The search for gold and the means of obtaining it cheaply, made them untiring pioneers in this unexplored region. For centuries they worked assiduously to discover the *alkalæa*, or universal solvent. In this they failed, but they discovered the acids described by Basil Valentine, which almost answer the purpose. They sought for many generations the philosopher's stone, which should transmute the base metals into those more precious. It eluded their search, but they brought up from the deep unknown a vast number of new facts, that have proved of more value to mankind than the mysterious stone could ever have been. So they found not the *elixir vitæ*, which should cure all diseases and prolong life indefinitely; but they discovered much that relieves mankind of pain and sickness, and thus adds to the enjoyment of the allotted span of life. Though they worked blindly to accomplish selfish ends, the result of their labors was the clearing of the field and preparation of the ground for the grander and more universal science of chemistry.

ALCIATI, GIOVANNI PAOLO, a controversial theologian who flourished in the middle of the 16th century. He was a native of Piedmont. He abjured Catholicism, and joined himself to the Protestant communion, but soon afterward promulgated doctrines about the Trinity which were as distasteful to the Protestants as to the Catholics. He and his fellow-laborers, a doctor of medicine named Blandrata, a lawyer named Griband, and Valentinus Gentilius, had to flee from Geneva, and chose Poland for a refuge.

There Alciati and Blandrata met not only toleration but a hearty reception of their doctrines. Alciati died at Dantzic, a Socinian. He wrote 2 letters (1584 and 1585) to Gregory Pauli, in which he maintained that our Saviour did not exist before his birth of the Virgin Mary.

ALCIBIADES, a Greek statesman and general, of great endowments and fame, son of Clinias and Dinomache, born at Athens B. C. 450, died in Bithynia, Asia Minor, B. C. 404. He boasted his descent from Eurysaces the son of Ajax Telamon, and through him from Zeus himself. His grandfather had been among those who attempted the banishment of the Pisistratidae, and had received the prize of valor at the battle of Artemisium; and his father fell 4 years after the birth of his son, in the battle of Charonea. Alcibiades was educated in the house of Pericles, his maternal uncle, and from a child excelled in all studies, and in all physical exercises. As he advanced to manhood, his noble birth, beautiful person, transcendent abilities, and great wealth, joined to the consideration in which he was held by Pericles, procured for him a crowd of friends, admirers, and flatterers; and he became as distinguished for the audacity of his dissipations as for the brilliancy of his station and abilities. At this time he attracted the attention of the man, who, perhaps of all the men of antiquity, was best qualified to teach him a respect for virtue—the philosopher Socrates. Socrates discovered his capacities, sought his friendship, and gained great influence over him. But the passions had gained too great predominance over the young man, and he had surrounded himself by too many tempting influences to obey at once the voice of his teacher. From this time his whole life seemed a wavering between virtue and vice—seeing and admiring the former, but many times following the latter. He gave the first proof of his valor in the battle of Potidæa, where he was wounded while fighting side by side with Socrates, whose protection alone saved his life. He returned this service to his teacher soon after, at the battle of Delium, where his efforts saved Socrates from the sword of the conquering Boeotians. He always carried in war a shield inlaid with gold and ivory, and bearing the device of Zeus hurling a thunderbolt. At the same time he distinguished himself in the public festivals of the Greeks, and at the Olympic games he was not content with furnishing one chariot, like the other wealthy young men, but equipped and sent 7, with which he bore off the first 8 prizes. He took little part in public affairs till the death of Cleon in 422 B. C., when his eloquence immediately procured him great influence, and he became the head of the new war party in opposition to Nicias. Nicias had just concluded a peace of 50 years between the Athenians and Lacedæmonians, and Alcibiades, unwilling to occupy a second place in the state, jealous of the power of Nicias, and enraged that the Lacedæmonians had chosen the intervention of Nicias rather than his

own, in the negotiations, set himself to break the peace and to form a union of the Greek states against Sparta. His counsels caused the celebrated expedition to Sicily, of which he was appointed commander together with Nicias and Lamachus, and which he thought would be a step toward the conquest of Italy, Carthage, and Peloponnesus. While the preparations for this expedition were going on, all the busts of Hermes in Athens were during one night mysteriously mutilated. The cause and the authors of this sacrilege were wholly unknown, but the popular fears connected it in some unaccountable way with an attempt to overthrow the Athenian constitution. That Alcibiades had any thing to do with the offence there was no evidence, and if he were guilty of it, it was probably one of the unpremeditated and insignificant results of a nocturnal debauch. Nevertheless, suspicion of being a ringleader in the attempt was thrown upon him, and immediately produced great popular indignation. The Sicilian fleet was nearly ready to sail under his command, and he demanded an investigation before his departure from Athens. This his enemies refused to give him, thinking to increase the popular odium against him in his absence. The expedition, however, had hardly reached Sicily when the anger of the people became so excessive toward him that his death was fully determined upon. But as he had already gained shining advantages in Sicily, and had become the favorite of the soldiers, it was deemed hazardous to pass public sentence upon him while he was at the head of an army. He was therefore recalled to stand his trial. On his return home he escaped at Thurii and fled, first to Argos, and then to Sparta. Mean time sentence of death was passed upon him at Athens, and his property was confiscated. In Sparta he adapted himself skilfully to the severe manners of the country, became a favorite of the populace, and, being now the avowed enemy of his own country, he persuaded the Lacedemonians to send help to Sicily against the Athenians. He then effected an alliance between the Spartans and the king of Persia, for the purpose of supporting the Chians in revolt against Athens. He even passed over into Asia Minor, and by his personal influence roused all Ionia into rebellion. Soon, however, his successes and great influence excited the jealousy of the principal Spartans, and Alcibiades escaping from the meshes of a plot for his murder, took refuge with Tissaphernes, a Persian satrap, whose favor he quickly gained by his noble and fascinating address. He who had gained the admiration of the Spartans by adopting all their simplicity, and practising all their severity, now merited the applauses of the Orientals by abandoning himself to Asiatic luxury. An exile both from Athens and Sparta, he began now to look with longing and love towards his native country. He persuaded Tissaphernes to desert the cause of the Spartans, and to show willingness even to assist the Athenians, for which

service he was recalled from banishment, B. C. 411. Though he did not return immediately to Athens, he yet used his influence to render the government more aristocratical, and received command of the Athenian fleet at Samos, with the purpose not to see again his native land till he had rendered it services commensurate with the evils which he had caused it. He soon defeated the Lacedemonians, both by land and sea. When he returned to Tissaphernes, he was suddenly arrested by the latter, who wished to avoid suspicion of having authorized or participated in his enterprise. But finding means to escape, Alcibiades again put himself at the head of the army, defeated the Lacedemonians and Persians at Cyzicus, captured Cyzicus, Chalcedon, and Byzantium, restored to the Athenians their supremacy by sea, forced the Lacedemonians to sue for peace, and after these brilliant achievements returned to Athens in B. C. 407, where he was received with general enthusiasm, the Athenians now esteeming his banishment to have been the cause of all their misfortunes. His triumph and popularity were complete, when he celebrated, with unusual splendor, the Eleusinian mysteries. Being appointed commander-in-chief of all the land and sea forces, he sailed with a fleet to Asia Minor, to reduce some of the Ionian islands and cities. The pay and provisions for his soldiers not arriving, and his position becoming dangerous, he was obliged to leave his army in command of Antiochus, while he himself sought supplies in Caria. During his absence, the Spartan commander Lysander had the art to draw Antiochus into an engagement, in which the Athenians were defeated, and a part of their vessels destroyed. Alcibiades now again lost favor. This defeat furnished his enemies with a handle against him, and he was superseded in his command. He went into voluntary banishment, to a castle which he had formerly built for himself in Pactye, Thrace. When the Athenian fleet was lying at Ægos Potami, Alcibiades informed the generals of the perilous position which they had selected, and forewarned them of the fatal result of that battle, which soon after caused the fall of Athens and its subjection to tyrants. The Spartans, who now ruled at Athens, renewed the decree of banishment against him, and Alcibiades fled toward the court of Artaxerxes to win over that monarch to the cause of his fallen country. He was on his way thither in the dominions of the satrap Pharnabazus, when one night his house was surrounded by armed men, and set on fire. He rushed out, sword in hand, but fell pierced with arrows. The Spartans feeling their supremacy insecure while Alcibiades lived, had thus plotted successfully with Pharnabazus for his destruction. Thus died one of the most highly gifted of the Greeks, a man who seems more nearly than any other, to have been an impersonation both of the vices and the virtues of the Greek character. He possessed rare power to win and govern men, but his great qualities were

not crowned by moral nobleness. He had that daring which is inspired by the consciousness of superiority, but not that steadiness and consistency which come from a moral purpose.

ALCIDES, a name given both to Amphitryon, the son, and Hercules, the grandson, of Alcæus.

ALCINOUS, I. A philosopher of the Platonic school, author of a treatise called *Ἐπιτομή των Πλάτωνος δογμάτων*, which has been translated into English. The date of the work is unknown. II. A fabulous personage, king of the Phæaciæ, described in the *Odyssey*. He received Ulysses hospitably, who visited his dominions during his wanderings.

ALCIPHON, a Greek writer, was probably contemporary with Lucian, A. D. 170. He was the author of 118 fictitious letters, in which certain representative characters—fishermen, peasants, parasites, and courtesans—are made to portray, in the purest Attic, the opinions and idiosyncrasies of the classes to which they respectively belong. These letters are generally written from Athens or its vicinity, in the age immediately after Alexander the Great. The best edition of them is that of Seiler, Leipzig, 1853.

ALCIRA, an old Spanish walled town, on an island in the river Jucar, in the province of Valencia. Population about 13,000.

ALCMÆON, I. A son of Amphiaræus and Eriphyle, of Argos. After his return from the Theban war, he slew his mother, in obedience to the injunction of his father. For this crime, he was afflicted with madness, and tormented by the Furies, who drove him into exile, and doomed him to a life of perpetual wandering. Arriving in Psophis, he was hospitably received by its king, Phegeus, who gave him his daughter Arsinoë in marriage. To her Alcmæon presented the necklace and robe of Harmonia, which he had taken from Eriphyle. But Psophis having been visited by a famine because of his sojourn there, he had to depart, and, by the advice of an oracle, went to Aeheloiæ, where he married the nymph Calirrhoë. His new spouse coveting the magical robe and necklace which he had given to Arsinoë, Alcmæon went to Psophis, and obtained them from the daughter of Phegeus, under pretence of wanting to dedicate them at Delphi. But when Phegeus heard that they had been presented to Calirrhoë, he sent his sons to Aeheloiæ, where they killed Alcmæon, and avenged the insult offered to their sister. Alcmæon, after his death, was worshipped as a hero, in many parts of Greece. II. **ALCMÆON**, a Greek natural philosopher, born in the Hellenic city of Orotæna in Italy, about the middle of the 6th century B. C. He is said to have studied under Pythagoras, and to have been the first who ventured on the practice of dissecting animals. He wrote several medical and philosophical treatises, which have all perished, save the titles and a few fragments.

ALOMAN, or **ALOMÆON**, a Spartan lyric poet, flourished about 650 B. C. He is said

to have been by birth a Lydian, and originally a slave, and to have died at a very advanced age. He wrote chiefly in Spartan Doric. His poetry is mostly erotic, but occasionally religious, ethical, and philosophical. He was the inventor of that species of hexameter known by the name of Alcmæian, which consisted of two dactyls and two trochees. For example:

Virgini | būs pūs | risquē | cūntō.

ALCMENA, daughter of Electryon, king of Mycenæ, had 10 brothers, who, save one, were slain by the sons of Pterelæus. Alcmæna had been betrothed to Amphitryon, but she nevertheless declared that the man who avenged the death of her brothers, should be her husband. Amphitryon, in order to prove himself worthy of her hand, undertook the enterprise. During his absence, Zeus visited Alcmæna, and by assuming the likeness of Amphitryon, and pretending to have avenged the death of her brothers, he obtained her favor. She thus became the mother of Hercules, by Zeus, almost at the same time that she bore Iphicles to Amphitryon. After her death, Zeus is said to have sent Hermes to transport her body to the Elysian Isles. At Athens, and elsewhere, Alcmæna was worshipped as a heroine, and the epic and tragic poets of later times combined to perpetuate her fame.

ALCOCK, DR. JOHN, bishop of Ely, and afterward lord chancellor of England, was born at Beverley in Yorkshire, and died Oct. 1500. He was educated at Cambridge, made dean of Westminster, and master of the rolls, and made successively bishop of Rochester, of Worcester, and of Ely. He was distinguished for his literary attainments and piety, and much beloved by Henry VII. He founded Jesus college at Cambridge, and built the large hall of the bishop's palace at Ely. Among his works are *Mons Perfectionis*, *In Psalmos Penitentiales*, and others.

ALCOHOL, a word of Arabic origin, now used to designate the spirituous or intoxicating element of fermented liquors. It exists in all of these, and is extracted from them by distillation. The liquors, as brandy, whiskey, or rum, obtained by the first distillation of the cruder articles, are redistilled, and the highly volatile alcohol is the first product which passes over. It carries with it a portion of aqueous vapor, so that the alcohol thus obtained is never pure, but contains from 20 to 25 per cent. of water. As the distillation goes on, the proportion of water increases to 30, 40 per cent., and so on, till the product is but a mixture of weak spirit and water. The essential oil, called fusel oil, and acetic acid, contained in the brandy or other ardent spirit employed, are kept back by placing in the liquor some substances, as carbonate of soda, for combining with and retaining the acid, and charcoal for effecting a similar purpose with the oil. The alcohol thus obtained is called rectified spirits, or spirits of wine. It may contain from 55 to 85 per cent.

of alcohol. That of the London Pharmacopæia contains about 82 per cent. of alcohol and 18 of water. Its specific gravity is required to be 0.888, water being 1.000. It is thus seen, that the less water it contains, the less is its specific gravity; and this property is therefore a convenient test of its purity. In consequence, however, of condensation of the two fluids when mixed, this test cannot be applied except in connection with tables of reference prepared for this purpose.—To prepare absolute or anhydrous alcohol, some substance must be placed in it which shall retain the water, as in the preceding process the acetic acid and fusel oil were retained by the carbonate of soda and charcoal. Dry carbonate of potash is such a substance. It has a great affinity for water, deliquescent on exposure to the air, that is, partially dissolving in the moisture it extracts from the air. It does the same thing in alcohol, containing water, but when the alcohol is anhydrous it has no effect upon the potash any more than has air deprived of its moisture.—The potash absorbs the water, partially dissolves in it, and the alcohol nearly anhydrous occupies the upper part of the vessel, whence it is distilled off nearly pure. Its specific gravity is now reduced to 0.815, and its per centage of water to about 5.—Quicklime well powdered, and thoroughly mixed and shaken with the alcohol, is sometimes used instead of the carbonate of potash. But chloride of calcium is said by some to be more effective than either. The salt is first fused to free it from water, and is then mixed with an equal weight of the spirit in a well-stoppered bottle. When the solution is effected, it is poured into a retort or still, and distilled at a moderate heat. The product of the first half is absolute alcohol. Its specific gravity at a temperature of 60° is 0.794. Dr. Ure does not, however, recommend this process.—Rectified spirit may be deprived of a portion of water merely by being left in a bladder, or in a wide-mouthed bottle tied over with bladder, and kept at a temperature from 105° to 120°. By the principle of exosmose, the water evaporates in part through the membrane. Alcohol has thus been brought from sp. gr. 0.867 to 0.817.—Pure alcohol is a colorless fluid, of an agreeable odor, and strong pungent taste. It has a great affinity for water, absorbing it from the atmosphere, and increasing in specific gravity with the amount it receives. Mixed with water, heat is at first evolved, showing that a chemical union has taken place; another evidence of which is the condensation and diminution of bulk, and a less specific gravity. The greatest heat and condensation result from a mixture of 54 per cent. of alcohol and 46 of water. The specific gravity, therefore, of such mixtures can only be determined by experiment.—Diluted with water, alcohol acts as a stimulant, exciting particularly the nervous and vascular systems. In large doses it produces intoxication, and when taken pure acts as a narcotic poison, producing

death. It is very inflammable, burning with a pale bluish flame without smoke. The products of its combustion are carbonic acid and water. It boils at 178°. The specific gravity of its vapor is 1.6183. Under the exhausted receiver of an air-pump it boils at common temperatures. No degree of cold ever yet obtained has effected its congelation. Faraday exposed it to a temperature 166° F. below zero, which caused it to thicken considerably. It is thus well suited for thermometers for measuring low temperatures.—The composition of alcohol by weight is, carbon, 52.18; hydrogen, 13.04; and oxygen, 34.78. Its symbol is $C^1 H^8 O^3 = C^1 H^4 + H^4 O^3$, or one atom of ether and one atom of water. It is therefore a hydrate of ether.—Alcohol is applied to a great variety of uses. It is employed in medicine as a solvent in the preparation of tinctures. It is also a solvent of resins, gums, &c. With the former it makes varnishes; with essential oils, perfumed spirits. The ethers are preparations of it in combination with an acid. It is used with spirits of turpentine to make camphene, and the various other dangerous illuminating fluids of this class. It is used to preserve anatomical preparations, its effect being to combine with the moisture, and so prevent this from acting upon the animal substance to produce decay. To the chemist it is valuable as a convenient fuel, producing in his lamp much heat with no annoyance from smoke; and it is of frequent use as a reagent for separating salts, one of which is soluble and the other insoluble in it.—The quantity of alcohol in wine, beer, and other fermented liquors, is quite variable. Prof. Brande found from 1 to 2 per cent. only in small beer; 4 in porter; from 6 to 9 in ale; about 12 in the light wines of France and Germany; from 19 to 25 in port, sherry, and other strong wines; and from 40 to 50 per cent., and occasionally more, in brandy, gin, and whiskey. The flavors peculiar to these liquors are sometimes, but not always, derived from the plant which furnished them. They exist in the essential oils, and are left with them in the rectifying process. In the case of gin and some other liquors, substances are sometimes added for the purpose of improving the flavor. These are not always harmless like the juniper berry, but powerful extracts like oil of turpentine are used for the same purpose.—The strength of these liquors is ascertained by various expedients; but the process is sometimes complicated by reason of the different ingredients intermixed to color, sweeten, or flavor the liquor, or fraudulently added to alter the specific gravity, or to substitute a cheaper material. Mixtures thus complicated require to be first distilled, before their strength can be ascertained by the usual process of specific gravity. Common modes of judging of the strength are by tasting, observing the size and appearance of the bubbles when shaken, the sinking or floating of olive oil in them, and the appearances they exhibit when burned. If cotton or gunpowder

immersed in them is inflamed by their combustion, the spirit is considered pure.—The importance of having some extremely accurate mode of determining the strength of alcoholic mixtures, led the lords of the treasury of England to request the royal society to investigate the use of the hydrometer known as Sykes's, employed by the excise officers. The committee appointed by the society reported, "that a definite mixture of alcohol and water is as invariable in its value as absolute alcohol can be; and can be more readily and with equal accuracy identified by that only quality or condition to which recourse can be had in practice, namely, specific gravity."—In Dr. Ure's "Dictionary of Arts, Manufactures, and Mines," are full details respecting the use of this and other similar instruments, and also the tables prepared for them. The subject is still more fully treated in Dr. Sheridan Muspratt's new illustrated work on chemistry.—Concerning the use of alcoholic liquors as a medicine, and the propriety of ever administering them, the ablest writers hold directly opposite opinions; while all of them agree in warning against the dangers that are sure to attend their habitual use. The best authorities treat of them as a stimulant, that may be employed to advantage in sustaining the enfeebled powers in advanced stages of fevers, or in hastening their restoration in convalescence from acute diseases, as also in cases of chronic debility. For indigestion, colic, lockjaw, and some other diseases of a violent and sudden nature, alcohol may prove of great benefit. And so as an ingredient in lotions for sprains and bruises, it is without question of useful service. Yet many would gladly see it banished from the pharmacopoeia, in view of the immense evils it brings upon the unfortunate individuals who acquire the taste for it; and which extend to their families, and are often transmitted to their offspring.—Alcohol has been recently produced from a mixture of sulphuric acid, bicarburetted hydrogen, and water, by repeated distillations. The possibility of thus producing from inorganic substances one of organic origin, has attracted much interest in France. The experiment was successfully made by M. Berthollet. It would seem, however, that the credit of the discovery is fairly due to Kannel, who described the same operation in the "Philosophical Transactions" for the year 1828. He there says: "By combining olefiant gas with sulphuric acid, we may form sulphovinic acid, from which we may obtain at pleasure, by varying the circumstances of decomposition, either alcohol or ether."

ALCONA, a new county in Michigan, containing about 680 square miles, lying in the N. W. part of the state. It borders on lake Huron, and the river Au Sable has its course through the country. But little is known of its productions, or of the number of its inhabitants, owing to its new and unorganized condition.

ALCOTT, Amos Bronson, a philosopher devoted to the science of education, born at Wol-

cott, Conn., Nov. 29, 1799. Like many farmers' sons in Connecticut, whilst still a boy, he was intrusted by a local trader with a trunk of merchandise, with which he sailed for Norfolk, Va., and which he afterward carried about among the plantations; and his early readings were in the planters' houses, who gave hospitality to the young salesman, and, observing his turn for study, talked with him, and opened their bookcases to him in a stormy day. On his return to Connecticut he began to teach, and attracted attention by his success with an infant-school. He removed to Boston in 1828, and showed singular skill and sympathy in his methods of teaching young children of 5, 6, and 7 years, at the "Masonic Temple." (See a printed account, "Record of a School," E. P. Peabody, 12mo, Boston, 1834; also, a transcript of the colloquies of these children with their teacher, in "Conversations on the Gospels," 2 vols. 12mo, Boston, 1836.) But the school was in advance of public opinion, and, on the publication of this book, was denounced by the newspapers of the day. After closing his school, Mr. Alcott removed to Concord, Mass., where he betook himself to his studies, interesting himself chiefly in natural theology, and the various questions of reform, in education, in diet, civil and social institutions. On the invitation of James P. Greaves, of London, the friend and fellow-laborer of Pestalozzi in Switzerland, Mr. Alcott went to England in 1842. Mr. Greaves died before his arrival, but Mr. A. was cordially received by his friends, who had given his name to their school at "Alcott House," Ham, near London, and spent some months in making acquaintance with various classes of reformers. On his return to America, he brought with him two of his English friends, Charles Lane and H. G. Wright; and Mr. Lane having bought a farm which he called "Fruitlands," at Harvard, Mass., they all went there to found a new community. Messrs. Lane and Wright soon returned to England, and the farm was sold. Mr. Alcott removed to Boston, and has led the life of a Peripatetic philosopher, conversing in cities and in villages, wherever invited, on divinity, on human nature, on ethics, on dietetics, and a wide range of practical questions. These conversations, which were at first casual, gradually assumed a more formal character, the topics being often printed on cards, and the company meeting at a fixed time and place. Mr. Alcott attaches great importance to diet and government of the body; still more to race and complexion. He is an idealist, and we should say Platonist, if it were not doing injustice to give any name implying secondariness to the highly original habit of his salient and intuitive mind. He has singular gifts for awakening contemplation and aspiration in simple and in cultivated persons. Though not learned, he is a rare master of the English language; and, though no technical logician, he has a subtle and deep science of that which actually passes in thought,

and thought is ever seen by him in its relations to life and morals. Those persons who are best prepared by their own habit of thought, set the highest value on his subtle perception and facile generalization.

ALCOTT, WILLIAM A., M.D., the author of a number of works on education, physiology, hygiene, domestic economy, etc., was born at Wolcott, Conn., August 6, 1798. He enjoyed no advantages for obtaining an education in youth, beyond those which the district school afforded, and supported himself until he reached the age of 25, by working on the farm in summer, and teaching in winter. His health being precarious, he then gave up manual labor, and studied medicine at the medical school of Yale college. After practising physic for 8 or 4 years, he engaged, in company with Mr. Woodbridge, the geographer, in the preparation of school geographies and atlases, and in editing the "Juvenile Rambler" (the first weekly periodical for children published in America), and the "Annals of Education." At this time he cooperated actively with Gallaudet, Woodbridge, Hooker, and others, in striving to effect a reform in the public schools of the state. He wrote many articles on this subject for the Hartford and New Haven papers, one of which "On the Construction of School Houses," gained a premium from the American institute of instruction. In January, 1832, Dr. Alcott removed to Boston, where he continued his literary labors, and his efforts in behalf of various philanthropic reforms. About this time he published his "Young Man's Guide," which had an extensive sale, and has exerted a great influence in spreading important physiological principles among the people of this country. For the past 20 years he has passed his summers in laboring at home with his pen, and his winters in lecturing in different parts of the country, upon the topics which have especially occupied his attention. He has visited upwards of 20,000 schools, before many of which he has lectured. The publication of his "Young Man's Guide" brought him a somewhat numerous class of patients of a peculiar description, and he has also treated a vast number of cases of consumption. Dr. Alcott is 60 years of age, and although he inherited a feeble constitution, and was at one time threatened with consumption, is now in the enjoyment of good health, which he ascribes to the simplicity of his habits, and to his abstemious diet. He still leads a very active life. It is his boast, that at the age of 22 he had fully reimbursed his father for all the labor and expense which he had caused him during his childhood. He has published since 1832 above 100 books and pamphlets, among which may be specified in addition to those already mentioned, the "House I Live In," the "Young Woman's Guide," "Young Housekeeper," the "Library of Health," in six volumes, "Moral Reform," and "My Progress in Error." Dr. Alcott, though the advocate of many opinions

which are open to the charge of singularity, is a philanthropist of the genuine stamp, and his name is identified permanently with some of the most valuable reforms in education, morals, and physical training, which the present century has witnessed. The amount of labor which he has performed without the expectation of any compensation for his services, is believed to be almost unparalleled. So unintermitting and engrossing have been his various avocations, that he states that he has hardly ever found time to read a book through; and, that the books which he has written, probably exceed in number those which he has read entirely. Dr. Alcott's views of reform do not lead him to the adoption of any violent and destructive measures. The great object of his labors is to prevent poverty, vice, and crime, by means of correct, physical, and moral training, and the judicious application of intelligence to the improvement of society. His present residence is at Auburndale, Massachusetts.

ALCOY, a city of Spain, in the province of Alicante, 24 miles north from the town of that name. Its manufactures are extensive, producing annually 200,000 reams of paper, and 28,000 pieces of cloth. Population 27,000.

ALCUINUS, or ALCOIN, a celebrated scholar of the 8th century, born at York, England, in 785, died May 19, 804. He was the confidant, teacher, and adviser of Charlemagne. When his instructor, Elbert, was created archbishop in 766, Alcuinus succeeded him as principal of the school at York. In 782, he was invited to Parma by Charlemagne, who consulted him in the management and improvement of his empire. While in the court of this emperor, he bore the name, Flaccus Albinus. In his endeavors for the dissemination of knowledge, he founded a high school and several cloisters, and many of the schools in France owed their origin to him. In 796, he established the school in St. Martin's abbey, at Tours, which was modelled after the one in York, and in which he was himself a professor after leaving the court in 801. He was conversant with the Latin, Greek, and Hebrew languages.

ALOYONIUS, PIERRO, an Italian author, born in Venice, 1487, died 1527. He has been severely criticized for the errors in his translation of Aristotle. He was made a professor at Florence, but afterward removed to Rome, and lost all his property during a sedition in the city. When the troops of Charles V. captured the place, he adhered to the pope, and inveighed against the injustice of the emperor, and the cruelty of his soldiers, in 2 orations.

ALDAMA, J., a Mexican chieftain, born in 1782, and one of Hidalgo's generals at the Alhondaga of Guanajuata, at Los Cruces, Aculeo, Valladolid, and Calderon. He was shot with Hidalgo, Abasola, and Allende, at Chihuahua in July, 1811.

ALDAN. I. A name applied by some geographers to the whole range of mountains in

north-eastern Asia, extending from the great Altai chain to Behring's strait. Others limit its application to a branch of this extensive mountain system, extending from the Stanovoi mountains, in a north-westerly direction, about 900 miles. Mt. Kapitan, the highest summit, has an elevation of 4,268 feet above the sea level. II. A river, which rises in the Aldan mountains, and after a course of more than 500 miles falls into the Lena, 60 miles below Yakootsk.

ALDBOROUGH. I. A parish in Yorkshire, England, a place of great antiquity, supposed to have been the capital of the Brigantes, and known to the Romans as Isurium. Several remains of antiquity have been discovered, Roman coins, tiles, mosaics, and the ruins of an aqueduct. Three remarkable obelisks of rough stone are also in the neighborhood, the highest of which is 80 feet high. II. A small fishing town in Suffolk, once a place of importance. It has acquired celebrity from the poems of George Crabbe, who was born there.

ALDEBARAN, the Arabic name of a star of the first magnitude, now called a *tauri*, forming the eye of taurus, or the bull. It is one of the group of 5, known as the Hyades. The Arabs also called this star Ain el Thaur, or the eye of the bull.

ALDEBERT, a French sectarian of the 8th century. He asserted that he was in possession of a letter that had dropped from heaven which had been written by Christ Jesus, and had been delivered to him by the angel Gabriel. He opposed the forms of the church, and was excommunicated in 743.

ALDEGONDE, PHILIPP VAN MARNIX, Dutch diplomatist, and personal friend of William the Taciturn, prince of Orange, born 1538, died 1598. He drew up the agreement by which Louis of Nassau and Henry of Brederode bound themselves to resist the establishment of the inquisition in the Netherlands. The resistance to the will of the Spanish monarch brought the relentless Alva into the Netherlands. Aldegonde was taken prisoner at Maassluis, but was released. He defended Antwerp. On the establishment of the republic, he became professor in the university of Leyden.

ALDEGREVER, HEINRICH, a famous German painter and engraver, born at Soest, in Westphalia, in 1502. He was the pupil and imitator of Albert Dürer. His prints, which are very numerous, are sharp and angular in outline, and generally small.

ALDEHYDE (*alcohol dehydrogenatus*), so named from its being obtained by depriving alcohol of its hydrogen. It is a colorless, limpid fluid, volatile and inflammable, with a peculiar ethereal odor. Its vapor is suffocating, a small quantity inhaled causing spasmodic constriction of the thorax. In the air and sun-light it changes into acetic acid, from which it differs only by containing an atom less of oxygen. It is supposed to be an intermediate stage in the production of acetic acid from alcohol. Its

composition is, carbon, 4 atoms=54.55 per cent.; hydrogen, 4 atoms=9.09; and oxygen, 2 atoms=36.36 per cent. Its specific gravity is .79. It boils at 71½° F. Aldehyde is known to exist in the human system necessarily in the state of vapor. Dr. A. A. Hayes, of Boston, is of opinion that alcohol taken into the stomach and exhaling with the vapor of water, is converted into aldehyde, abstracting oxygen from the fluids or other sources. Respiration is increased to restore the oxygen thus removed, and the animal heat is added to. The alcohol excites and stimulates; the aldehyde acts as an anæsthetic.

ALDEN, JOHN, one of the earliest settlers of Plymouth, New England, was a magistrate in that colony for more than half a century, until he died in 1687, aged 89. On behalf of Miles Standish, John once proposed marriage to a Pilgrim lady, who replied, "Prithee, John, why do you not speak for yourself?" The query led to John's becoming a suitor for the lady's hand, and soon afterward her husband. He was distinguished in the colony for his piety, and important official services.

ALDEN, TIMOTHY, the founder and earliest president of Alleghany college, Meadville, Pennsylvania, born 1771, in Massachusetts, died July 5, 1839, at Pittsburg, Pa. He was a Congregational minister for several years at Portsmouth, New Hampshire. During the later years of his life, subsequent to his founding the college, he again engaged in clerical labors. He was the editor of a collection of epitaphs and inscriptions in 5 volumes.

ALDENHOVEN, a small town in Rhenish Prussia, on the road from Illich to Aix-la-Chapelle, has given its name to a victory of the Austrians under Coburg, over a part of the French army of Dumouriez, March 1, 1793. After the conquest of Belgium, in 1793, Dumouriez, meditating an invasion of Holland, left 70,000 men between the Maes and the Roer, to besiege Maestricht and Venloo and to cover these sieges, while, with the remainder of the army, he advanced from Antwerp into Holland. The troops on the Maes were necessarily much dispersed; the divisions covering the sieges were cantoned near Aix-la-Chapelle, Aldenhoven, and Eschweiler. Coburg collected 40,000 men, and marched in 2 columns on the 2 latter places, turned the position of Eschweiler, took that of Aldenhoven by a front attack, and threw the French in disorder on Aix-la-Chapelle, which place was taken on the next day. Maestricht was delivered, and the Austrian advanced guard followed the French even across the Maes, and beat them at Tongues. The dispersed French divisions did not rally before arriving at Tirlemont, where they waited for Dumouriez. Thus the road into Belgium was open to the allies, and the conquest of the country completed, a few days afterward, by the farther victory of Neerwinden. The loss of the French during the battle of Aldenhoven, and the pursuit, cannot have been less than

10,000 in killed, wounded, and prisoners, besides 10,000 who deserted immediately afterward; a great amount of *material*, too, fell into the hands of the Austrians.

ALDER (*alnus*), a genus of plants belonging to the natural order *betulaceæ*. It has four stamens, and its fruit is without wings, by which characteristics it is distinguished from the birch, with which it was classed by the earlier botanists. The principal species are found in North America, though some of its varieties are met with on the eastern continent. The common alder (*A. glutinosa*) grows in moist localities, especially on the higher portions of swampy grounds, which are free from standing water. This tree is applied to many valuable purposes of practical utility. Its wood is prized by machinists as adapted to mill-wheels and other work, which is mostly under water. It is also in request for certain branches of cabinet-making and turnery. The charcoal made from its wood is of an excellent quality, and is highly esteemed for the manufacture of gunpowder. The bark, which contains an astringent juice, is used for tanning, and, with the addition of copperas and other ingredients, forms a dye for several colors. The alder is also an ornamental tree, with its abundant foliage of deep green. The Turkey alder (*A. incana*) is abundant in the north of Europe, and is found to the east, even beyond the Caucasus. It is a taller and more erect tree than the common alder, and possesses many of the same properties, although it grows well in situations that are comparatively free from moisture. A beautiful species, *A. cordifolia*, or heart-leaved alder, is a native of Italy. The alder is easily cultivated, and although not rapid in growth, can be obtained from seed with a great degree of certainty.

ALDEROTTI, **TADDO**, a Florentine doctor of medicine, born 1215, died in 1295. For curing the Pope Honorius IV. he demanded a fee of 10,000 crowns. Dante, whose friend he was, calls him the son of Hippocrates.

ALDERMAN, a municipal title derived from the Saxon *ealdor*, old, and man. The term *ealdor* was in itself a title of honor used like the word "elder" in scripture. Among the Saxons the title was much more honorable and extensive than at present. It was not confined to civic offices, but was an hereditary rank held by the principal nobility, entitling them to precedence. The duties connected with the title were of a judicial character.—In modern times the alderman is a civil officer of municipal corporations, elected or appointed according to the constitution or charter of the city in which he holds his office. He is usually elected in ancient corporations by the burgesses or freemen. In New York the alderman is elected by the citizens of the district which he represents in the city council.

ALDERNEY, one of the channel islands belonging to England. Lat. 49° 45' N. long. 2° 18' W. It contains about 7 square miles, and

is situated in the bay of Noranches, about 7 miles west of Cape La Hogue, and 15 north-west of Cherbourg. It is separated from the mainland by the race of Alderney. Together with the other channel islands it formed a dependency of the Normans, and passed to the crown of England. Alderney is itself a dependency of Guernsey. About six miles from Alderney to the west are the caskets, a cluster of dangerous rocks, on which there are three light-houses forming a triangle. Upon these rocks Prince William, son of Henry I., perished, and in 1744 the Victory, of 110 guns, with a crew of 1,100 men, was totally lost. There is on the S. W. side, however, a fine natural harbor, in which a frigate may ride in safety. The most noteworthy fact connected with this little island is the administration of justice. The channel islands are not subject to the laws of England, but retain their own constitution. The civil power of Alderney is vested in 6 jurats chosen by the people for life. These, with 12 douzainiers, also chosen by the people and the governor, form a legislature in which the douzainiers deliberate; but neither they nor the governor may vote. The jurats, with the king's advocate and the greffier or registrar, constitute the court of justice, from which an appeal lies to the royal court at Guernsey, and in the last resort to the king in council. In criminal cases the court at Alderney is only a preliminary tribunal, the court at Guernsey having the final determination of the cause. The inhabitants principally live by fishing and agriculture. The Alderney cow is an animal much prized by judges of stock. This breed is remarkable for its excellent milking qualities, and for being unusually small and straight in the back.

ALDHELM, an eminent English divine and writer, during the Saxon heptarchy, who died in 709. He was a relative of the king of the West Saxons. He travelled in France and Italy, and was untiring in his devotion to study. He is said to have been the first Englishman who wrote in Latin, in which language he composed several works. After presiding over the monastery of Malmesbury for 30 years, he was made bishop of Shireburn, and held that office until his death.

ALDINE EDITIONS. By this title are known the various works which proceeded from the press of the Manutii, a celebrated family of printers in Italy during the 15th and 16th centuries. Aldus, his son Paulus, and grandson Aldus, composed the family; and they were (especially the elder Aldus) as renowned for their learning as for the typographical beauty and textual correctness of the works of which they undertook the issue. The capture of Constantinople drove out the learned men from the Greek capital, and dispersed them over southern Europe, and the Aldi had the advantage of assistance from many accomplished scholars, in the revision of their works. The Aldine editions comprise the ancient classics, and the

works of the Italian authors, Petrarch, Boccaccio, and Dante. The editions of the senior Aldus are the most esteemed, and the work *Bembo de Aetna*, 1495, is accounted one of the most perfect specimens of the printer's skill. Spurious works with the imprint of the Aldi are by no means uncommon. The great perfection which has been attained in the art of printing, and the attention which has been given, especially during the present century, to the reprint of the classics, has considerably diminished the real value of the Aldine editions; although rare specimens are still much sought for by the collectors. The library of the archduke of Tuscany contains, it is believed, the most perfect collection of Aldine works. But they are met with in most of the great libraries, the Bodleian at Oxford, the Imperial library at Paris, and the British museum.

ALDINI. I. ANTONIO, conte, Italian statesman, born 1756, died Oct. 1836. When Bologna declared its independence of the Papal government, he was sent to Paris by his fellow-citizens. He was a member of the council of ancients in the Cisalpine republic, and was held in much esteem by Napoleon, who created him a count and made him secretary of state to the kingdom of Italy. He built an elegant chateau in the park of Montmorency, near Paris, which was destroyed during the occupation of Paris in 1815. After the fall of Napoleon and the re-establishment of the former rulers in Italy, he resided in Milan until his death. II. GIOVANNI, brother of the preceding, born at Bologna 1762, died also at Milan 1834. He was professor of natural philosophy at Bologna, Italian counsellor of state, and knight of the order of the Iron Crown. He is well known by his writings on galvanism; he prepared a scheme for turning to profit the rise and fall of the tide in the lagoons of Venice in working mills; and is also said to have been the inventor of articles of fire-proof clothing.

ALDJAYHANY BEN-AHMED ABU ABD-ALLAH MOHAMMED, an Arabian geographer, born in Khorassan about A. D. 980, died in the middle of the 10th century. When grand vizier of an Arabian dynasty, he used to question all passing travellers about the condition of the countries they had passed over. He wrote a book upon the condition of Afghanistan and upper India, which contains precious information. All this vast extent of country was then inhabited by populations professing the Buddhist or Braminical faith. He desired to do what the Gasnevids did later, namely, to subdue them all and introduce the Koran. The book, left unfinished at his death, was recast and abridged by his son. Aldjayhany was a firm believer in astrology.

ALDOBRANDINI, a noble family of Florence, which owed its elevation to Pope Clement VIII., himself a member of it. **SILVESTRO**, a celebrated jurist, born at Florence 1499, died in Rome 1558. Being strongly opposed to the Duke Alexander de' Medici, he was banish-

ed from Florence in 1580. His wife was Cesa Deti, aunt of the cardinal of that name. Their eldest son, GIOVANNI, was auditor rotæ and cardinal, and is also known as an author. His brother, PIETRO, was advocate to the Apostolic cabinet. The son of this latter, PIETRO, born in Rome 1571, died in the same place 1621, was, in his 22d year, already a cardinal. As legate to France in 1601, he made up the peace of Lyons, between France and Savoy, and was created under Paul V. archbishop of Ravenna.—The most celebrated of the family was IPPOLITO, the youngest son of Silvestro, born at Fano 1586, died 1605. In 1592 he mounted the papal seat under the title of Clement VIII. The family disappeared in 1681, with Octavia, daughter of Giovanni Giorgio, prince of Rossano.

ALDRED, an English divine, abbot of Tavistock, and bishop of Worcester in 1046, is supposed to have died in Sept. 1068. He was the first English bishop that made a journey to Jerusalem. On his return, in 1054, he was sent on a mission to the emperor Henry II. He held the archbishopric of York for a while, but was deprived of it by the pope. He crowned William the Conqueror, and had great influence over that prince until his death.

ALDRICH, HENRY, dean of Christ church, Oxford, and eminent as a scholar, a divine, and a composer of church music, was born in 1647, and died Dec. 14th, 1710. He was educated at Christ church, and soon after taking his degree, entered the ministry, and accepted a tutorship in that institution. During the reign of James II., he was one of the leaders of the Protestant party, and when, on the accession of William to the throne, the Catholic dean of Christ church fled to the continent, Dr. Aldrich was appointed in his place. He did a great deal to promote the usefulness and prosperity of his college, and bequeathed it his valuable library of the classics.

ALDRIDGE, IRA, or ROSCOPUS, the real name of whom is said to be Hewlet, is a mulatto who has recently created no little sensation in a career rarely attempted by one of his color. He was born at a village called Bellair, near Baltimore, Md., about 1810, and was apprenticed to a ship carpenter, learning his trade in the same yard with Molyneux, the notorious negro pugilist and prize fighter. From association with the German population which is very large on the western shore of Maryland, he learned to speak the German language familiarly, and also picked up a degree of education rarely obtained by those of African descent, where negro slavery exists. When Edmund Kean was in the United States, after the troubles which occurred during 1826, in consequence of the Cox difficulties, Aldridge became his personal attendant, and is said to have accompanied him to England, where a natural talent for the stage was cultivated. He returned to the United States after a short absence, and some time subsequent to 1880, appeared at

Baltimore, at a theatre then known as the Mud theatre, which subsequently belonged to Junius Brutus Booth, the tragedian. He appears not to have been successful. There is no account of his having appeared in any other city in America, whence after a short time he returned to England. He began his career in some of the minor theatres of London, and then went to the provinces, drawing large houses. At Belfast, in Ireland, he played Othello to Kean's Iago, and also Orozambo to the same artist's Alban. He thence proceeded to the continent, and appeared in Amsterdam, Brussels, Berlin, Breslau, Vienna, Pesth, Königsberg, Dantzic, the Hague, Berne, Frankfort-on-the-Main, Dresden, Cracow, Gotha, and other cities, personating characters of every style and nationality. In most of these cities he received substantial tokens of approbation. The king of Prussia, at Berlin, wrote him an autograph letter, accompanying the first-class medal of art and science. The emperor of Austria conferred on him the grand cross of Leopold, and at Berne he received the medal of merit in the shape of a magnificent Maltese cross. In Germany, Aldridge was looked on as performing the Shakspearian characters with marked ability, but in England has not often appeared in any of Shakspeare's plays, except Othello, and the Merchant of Venice. In Zanga, Orozambo, Zorambo, Rolla, Hugo (in the Padlock), and other characters, the physiognomy of which suits his color, he is thought to display rare excellence. He is also a good comedian. After returning from his continental tour, Aldridge appeared at Covent Garden, in 1857, and after an engagement at the Britannia, was about to visit Sweden, whither he had been invited by King Oscar. A year or two since, a law procedure affecting his domestic relations attracted much attention in London. His wife is a white woman.

ALDRINGER, JOHANN, an Austrian field marshal, born 1590, died July 12, 1634. He came of a poor family of Luxemburg, and for some time was a domestic at Paris; subsequently he joined an imperial regiment at Innspruck, as a volunteer. By his bravery and talents he made his way up to the highest rank. In 1627 he received the title of Freiherr von Koschitz, and was appointed commissary-general of Wallenstein's army. In 1629 he took part in the negotiation at Lubeck, and in the same year joined the army in Italy and seized the city of Mantua. In 1631, on his return to Germany, he invaded Bavaria, stormed Landsberg and Gunzburg, but was baffled in his designs upon the town of Landshut, and was killed at the passage of the Isar.

ALDROVANDUS, ULYSSES, an Italian naturalist, born at Bologna, Sept. 11, 1522, died Nov. 10, 1607. He took his degree in medicine in 1553, was made lecturer of natural history, and in 1568 succeeded in persuading the senate of Bologna to establish a botanic garden. He investigated, meanwhile, the phenomena of the external world with indefatigable

zeal and industry. He made journeys for the purpose, and employed collectors. He published works on birds, on insects, and on the lower animals, and after his death the profusion of materials which he had brought together was arranged in additional volumes. His descriptions are ridiculed by Buffon for their unnecessary minuteness of detail; but notwithstanding his want of system, his accumulations of facts are invaluable.

ALDRUDI, COTTESSA DI BERTUROBO, an Italian lady, distinguished herself by her courage at the siege of Ancona, in 1172, when she rallied her vassals and friends, and defeating the forces of the Venetians, and of the Emperor Frederic I., freed the city from danger.

ALE, a fermented liquor prepared from an infusion of roasted barley. It is called ale or beer; in some places, as in Wilts and Dorset, in England, the terms are used indifferently. In others a distinction is made; ale being a lighter colored liquor prepared from slightly roasted malt, and which gives off more froth or head. Beer is probably the generic name, hence brewing. Though a German word, its connection with the Latin *bibere* is obvious. Ale is Anglo-Saxon. It is a common beverage in almost all countries in which the climate prohibits the cultivation of the vine; and here it may be observed that the use of some fermented beverage is universal throughout the ancient and modern, civilized and savage world, from Noah to the South-sea islanders. Beer or ale, *cerevisia* from Ceres the goddess of corn, is said by Tacitus to have been drunk in his time by the Germans, the root from which the great beer drinkers of modern times derive their origin. According to Herodotus, the Egyptians prepared it from the barley for which the valley of the Nile is still famous. Diodorus Siculus speaks of two different liquors, one the pure infusion, *sythos*, the other *kourmi*, prepared with honey. Some, even of the nations which could take their wine, did not despise John Barleycorn; the Spaniards, Gauls, and Greeks liked beer; the Gauls in particular had their corma and cerevisia, a barley beer and a wheat beer, while the Britons imbibed a thin potation, which would hardly pass the lips of their descendants, which they prepared from wheat and sweetened with honey. The Chinese, among whom every new-fangled idea has been in use for centuries, have a drink made of barley or wheat, and the Japanese take a rice beer at every hour of the day. Benighted Nubia and Abyssinia claim kindred with Europe in this one touch of nature—they prepare a drink from various grains. As for the Danes and Northmen, they placed their hopes of eternal happiness among other pleasures in an unlimited supply of beer. The bitter infusion of hops is of less respectable antiquity. Their use does not seem to date earlier than the 11th century; before that time the Scandinavians are reputed to have used oak bark. What effect the preservative virtues of tannin had on their bodies and health is not recorded. Root-beer, pleasant to Teu-

tons but an abomination to Britons, was invented after the 12th century; probably first devised as a substitute by some unfortunates during a time of famine, just as sailors who are out of tobacco take to chewing oakum. Hans Krüne of Nuremberg (1541), was the father of white beer, dear to the patriotic Prussian. Ale or beer was once accounted beyond dispute one of the necessities of life, and equally with bread, was subject to an assize of price and quality. Municipal officers, whose duty it was to taste the ale served out to the public and to report defaulters, were appointed by various English statutes. The duty was probably not unpleasant, seeing that the brewers were not likely to submit a bad brew for inspection. The venders of an adulterated tap had to stand in the public dung cart. Beer, though accounted less respectable than wine, perhaps, because the Romans who served out a ration of parched corn and vinegar to their hungry legions, thought but little of it, has furnished matter to literature and art. Beer riots in Bavaria, malt tax riots in England on account of the rise in the price of these beverages, help to teach statesmen that the great food question is at the bottom of all real popular discontent. Hogarth in his Beer alley and Gin lane shows us the infinite superiority of wholesome, sound-bodied beer, over the detestable alcohol, just beginning to be popular in his day. Every one remembers "John Barleycorn" as a picture of burly strength and substantial solidity. Burns's "happy ale" is the symbol of good fellowship; and to what a depth of contempt does Iago assign "small beer." The government of Bavaria paternally interested in the welfare of its people, gives considerable attention to the supply of its people with a good and wholesome drink; and although the *bock* beer, so called from the saltatory movements similar to those of a goat, which it induces in its too partial admirers, may bring the beverage into some disrepute with serious people, the excellence of Bavarian beer cannot be denied. The use made of beer by the British legislator, is rather to extract a revenue than to protect the consumer, while in the United States there is no legislation at all. Capital to an incredible amount is invested in breweries. The breweries of Philadelphia and New York represent immense interests; but they probably yield to London. Beside a vast number of smaller brewers in Great Britain, there are several large ones—Barclay, Perkins, Truman & Co., Whitbread, Reid, Meux, Goding, Allsopps, and other important houses. One of these houses alone employs 600 men, keeps 120 horses, has several fermenting vats of a capacity of 1,500 barrels, uses upward of one million and a half bushels of malt annually, and its capital would certainly not be overstated at \$5,000,000.—For further details on this subject, see *BEER* and *BREWING*.

ALE-HOUSES, beer shops, and wine shops, have been subjected in many countries to express legislation. This has a threefold object, either the protection of the public; the protec-

tion of consumers against adulteration; or for purposes of revenue. In England it was early thought expedient to place ale-houses under legislation for the purpose of checking the gathering of disorderly persons, and for the discouragement of excessive drinking. In the reign of Edward VI. the practice of taxing ale-houses was introduced. Various laws were made from time to time to meet the altering circumstances of society, and in the early part of the 18th century, the practice of drinking spirits having been introduced into ale-houses, the disorders to be amended by legislation were considerably increased. The general features of the license act are, that the local justices must be satisfied that the house in respect of which a license is sought, would be an accommodation to the neighborhood; that the applicant for a license is a person of good repute. The license requires him to keep good order in his house, to sell unadulterated liquor in honest measure; to open and close his house at stipulated hours; to keep his house closed on Sundays, and public holydays during the usual hours of divine service. Another class of ale-houses for the exclusive use of malt liquors, and not spirits, are licensed by the board of excise. In this case the applicant is not subjected to the same supervisory inspection of the local magistrates, and the license is held as a matter of right, and held during good behavior. This latter class of houses have given great offence to vested interests, and many of them having been opened in country districts, have afforded great temptation to the laborers, who spend their scanty earnings in rustic dissipation. In France an unlicensed dealer in wines or strong drinks, is liable to a fine of 25 to 500 francs, and 6 months' imprisonment.

ALEANDRO, GIROLAMO. I. An Italian cardinal, born in 1490, died in 1542. He was sent as the pope's legate to Germany, and at the diet at Worms, attacked Luther with great bitterness. His conduct on this occasion cost him the friendship of Erasmus. II. A grand-nephew of the preceding, born in 1574, died in 1629. He was a jurist, antiquarian, and poet, successively the secretary of the cardinals Bandini and Barberini, and one of the founders of the academy of humorists.

ALECTO, the daughter of Acheron and Night, or, as some say, of Pluto and Persephone, and one of the Furies.

A-LEE, a maritime term, applied to a ship which is struck by the wind across, so as to make her incline to the lee-side, or the side opposite to that whence the breeze proceeds. When the helm is moved over to leeward, it is said to be a-lee, or hard a-lee.

ALEGAMBE, PHILIPPE, a learned Jesuit, born at Brussels Jan. 23, 1592, died at Rome, Sept. 6, 1651. In 1618, he entered into the order of the Jesuits at Palermo. He professed philosophy at the college of Graetz, but settled finally at Rome, where he became superior of the convent of the Jesuits, and secretary of the

general of the order. Alegambe continued and improved the *Bibliotheca Scriptorum Societatis Jesu*, begun by Ribadeneira, and ultimately completed by Nathaniel Southwell. It is the best work on the biography and writings of the first Jesuit writers. It is unfortunately arranged not in the alphabetical order of the surnames, but of the Christian names.

ALEGRE, YVES, MARQUIS D', a marshal of France, born in 1658, died at Paris, Feb. 2, 1788. He was present at the battle of Fleurus (1690), where he was wounded. In 1703, as lieutenant-general, he distinguished himself at Nimègue. In Flanders, he was taken prisoner by the English under Marlborough, but was shortly afterward exchanged. He took Bouchain in 1712, and the very year of the conclusion of the peace of Utrecht, he helped Marshal Villars to beat the imperial troops, and to take Friburg. In 1724, he was raised to the dignity of marshal of France, and, some years later, as royal commissioner, he presided over the provincial states of the duchy of Brittany.

ALEMAN, LOUIS, archbishop of Arles, and cardinal of St. Cecilia, was born in 1390, and died in 1452. In company with Cardinal Julian, he presided over the deliberations of the council of Basel, which deprived Eugenius IV. of the tiara, and placed it on the head of the anti-pope Felix V. Aeneas Sylvius speaks of him as admirably qualified for the position. He was beatified by the pope in 1527.

ALEMAN, MATTEO, a Spanish writer of romance, born in Seville, about the middle of the 16th century, died in Mexico some time in the reign of Philip III. In 1568, he was commissioner of finance in his native land, but being accused of maladministration, he retired from public service, not, however, before he had suffered a long imprisonment. He then betook himself to literature. The first volume of a historical romance, written by him, 1599, entitled *Gusman de Alfarache*, passed through 26 editions within 6 years, and was translated into the French and Italian. The second part was published in Valencia in 1605, but the work was never completed.

ALEMANNI. Certain German tribes having formed a confederacy against the Romans in the 2d century of the Christian era, styled themselves "Alemanni," or *all men*, to mark the diversity of their origin, or their preëminent valor. They waged incessant wars with the Romans, in some of which they were vanquished, in some victorious. After their defeat by Olovis, king of the Franks, the confederacy was broken up, and the tribes which had composed it, were dispersed over different countries.

ALEMBERT, JEAN LE ROND D', one of the most distinguished mathematicians of France, born Nov. 16, 1717, died Oct. 29, 1783. He was the illegitimate child of the poet Destouches, commissary of artillery, and of Madame de Tencin, court lady, like many of the beauties of her time, more celebrated for wit and beauty than

for virtue. The infant was exposed by the unnatural mother, and was picked up in a dying state by the police, who handed it over to a poor glazier's wife, by whom he was brought up with maternal care and tenderness, and to whose affection the great philosopher responded throughout his whole life. He lived with her for 40 years, and when in the days of his fame, Madame de Tencin came forward and avowed her relationship, he repudiated her, alleging that she was but a stepmother, the glazier's wife his real parent. The name of Le Rond was given him from the market-place of that name in which he was exposed. Soon after his discovery, his father acknowledged him; and settled upon him a pension of 1,200 francs, which was sufficient to provide for his education. In 1721, he was sent to a boarding school. Here he outstripped his teacher's capacity, and in his 18th year was transferred to the Mazarin college of Paris. His theological studies here were eminently successful. He produced commentaries on Paul which the professors thought worthy of the warmest eulogies. He was for some time restrained from mathematical studies, and having abandoned divinity, studied law by the advice of both friends and preceptors. The irrepressible bent of his mind overcame all obstacles, and he at last gave up law, and betook himself with renewed ardor and delight to his favorite employments. A memoir and some remarks on the *analyses démontrées* of Reynaud procured him the membership of the academy of sciences. His celebrated treatise on dynamics appeared in 1743, and created a new branch of science. In 1744 he published his work on the equilibrium of fluids. In 1746, the Berlin academy of sciences proposed the general causes of the winds as the subject for the prize essays. D'Alembert's treatise gained him the prize and the membership of the academy; in this he attributed the currents to the combined influence of the sun and moon in creating an action, resembling the flux and efflux of the tides. D'Alembert has achieved a celebrity in the field of general literature, little inferior to his reputation in the exact sciences. He was early connected with the freethinkers of his age in the preparation of the *Encyclopédie*, and his *Discours Préliminaire* has been designated by the Marquis de Condorcet, himself an accomplished writer and thinker, as a production, of which only one or two men in a century could be found capable. The tendencies of the work were so subversive of established opinions, and so essentially destructive of existing institutions, that its progress was suspended temporarily by the government at the end of the 2d volume, at which time D'Alembert finally withdrew from the editorship. He was member of most of the learned societies of Europe, and was in intimate personal communication with Frederic the Great, who invited him to reside at the court of Berlin. This, however, he declined. The empress Catharine also offered him the post of tutor or

governor to the czarowitch, with an income of 100,000 livres, and on his refusal wrote: "I know that your refusal arises from your desire to cultivate your studies and your friendships in quiet. But this is of no consequence; bring all your friends with you, and I promise you, that both you and they shall have every accommodation in my power." He was, however, proof against these seductions, the powers and potentialities of the courts and royalty had but little influence with him; and it has been remarked of him, that the only great men to whom he dedicated works were Frederic the Great and two disgraced ministers. He was a man indeed of singularly independent mind and manners, without degenerating into discourtesy or indifference to the feelings or necessities of others. His connection with the *Encyclopédie*, has involved him in the general censure which attaches itself to the impiety and intolerance of many of its contributors. The bishop of Limoges, however, drew a distinction between D'Alembert and his colleagues; he says, "I do not know him personally, but I have always heard that his manners are simple and his conduct without a stain. As to his works, I read them over and over again, and I find nothing there but talent, information, and a sound system of morals." D'Alembert's means were limited, and insufficient to keep pace with his benevolence; for when only in the enjoyment of 2 pensions, of about \$500 a year, one from Frederic, and the other from his own country, whose court and courtiers long neglected him, he gave away more than half of it in charity. His grief on the death of M^{lle}. de l'Espinasse, a lady for whom he entertained a great attachment, which she requited with less ardent sentiments, is believed to have hastened his death. Bastien collected all his works in 18 vols., Paris, 1805, with a full life of D'Alembert prefixed. A more complete edition than the preceding was published by Bossange in 5 vols. 8vo, 1821. It contains several pieces not before published, and the correspondence of D'Alembert with Voltaire and the king of Prussia.

ALEMBIO, a term which has gone out of use with the article to which it was applied. This was a peculiar form of still, which is now superseded by other apparatus of improved form.

ALEMTEJO, a province of Portugal; area, 10,024 sq. m.; population in 1852, 284,831. It is bounded E. by Spain, N. by Beira and Estremadura, W. by the Atlantic ocean, and S. by Algarve. The surface on the E. is traversed by irregular chains and groups of hills, which in the western section almost entirely disappear. On the southern border the Algarvian chain rises to the height of 4,000 feet. The principal streams are, the Guadiana, the Tagus, and the Sado. The climate in the S. and W. is hot and dry, and the surface is covered with barren plains. In the E. the climate is more salubrious and the soil more fertile, yielding good crops of wheat, barley, rice, and maize. The

vine is universally cultivated. The citron, lemon, figs, and pomegranates, abound. Attention is paid to the breeding of sheep, hogs, and goats. In a few places, there are manufactures of woollen cloths, and of earthenware.

ALENÇON, a town in France, department of Orne, 116 miles from Paris. Population, with suburbs, 15,000. The general inland trade of the place is considerable, but it is chiefly known for the famous lace, *point d'Alençon*. The fabrication of this costly article now gives employment to only a few families, in which it is an hereditary occupation. The trade was one of the forced productions of the great Colbert, who gave a monopoly of it for 10 years and a bounty from the crown. The inhabitants are generally engaged in muslin manufacture and embroidery, in leather, glass, and iron manufacture. The agricultural activity in the neighborhood is considerable. There is a library of 6,000 volumes, a museum, and a college. There is also a theatre, and annual horse races.

ALENIO, GRULLO, a Jesuit priest, was born at Brescia in 1582, and died in 1649. He spent 86 years in the Chinese empire, disseminating the truths of Christianity among the natives, and wrote several works in that language.

ALEPPO, a city and province of Asia Minor. The province is a pashalic of the Turkish empire, in northern Syria. It is known in Turkish and lingua Franca as Haleb. It is bounded W. by the Mediterranean sea, E. by the Euphrates; on the N. the ranges of the Taurus and various other pashalics; on the S. the ranges of the Lebanon hem it in. The climate is healthy in the valleys, which are in the highest degree productive, literally flowing with milk and honey, abounding in the choicest fruits of both temperate and tropical climes. The city was once a magnificent place, the emporium of oriental trade. The fame of its greatness penetrated throughout Europe. It was in the streets of Aleppo that Othello "smote the turbaned dog," whilst the unlucky sailor "had on a voyage to Aleppo gone," against whom the witch-wife had conceived a grudge. Little more than half a century ago, Aleppo boasted of 800,000 inhabitants, but the terrible earthquake of Aug. 13, 1822, shook down half the city, and so alarmed the surviving inhabitants that they deserted in thousands. It is still, however, an important town, and contains 80,000 people.

ALES, ALEXANDER, a Protestant divine, was born at Edinburgh, April 23, 1500, and died at Leipsic, March 1565. He violently opposed the doctrines of the reformers at the outset, but was much shaken in his views by the arguments of Patrick Hamilton, and by the fortitude with which he met death at the stake. Being persecuted in consequence of this, he fled to Germany, where his conversion was completed. While Cranmer and Latimer were in power, he resided some time in England, highly esteemed by them, and after their down-

fall returned to Germany, where he held the professorship of divinity at Frankfort-on-the-Oder, and afterward at Leipsic.

ALESIA, a fortified city of Celtic Gaul. It stood on an eminence near the sources of the Sequana or Seine, and was a place of great antiquity. It was taken and destroyed by Cæsar, but was subsequently rebuilt, and became a very considerable city under the Romans. It was ruined by the Normans in the 9th century.

ALESSANDRI, **ALESSANDRO**, a profound lawyer, who flourished in Naples at the close of the 15th century, and died about 1528, aged 62. He finally gave up the practice of his profession, and devoted himself to literary pursuits. He gives a sketch of his life in his work called *Dies Geniales*. The latter part of it was spent at Rome, where he was interred in the monastery of the Olivets.

ALESSANDRIA. I. A division of Piedmont, containing about 550,000 inhabitants, growing maize, wine, silk, madder, and flax. II. A fortified city in Piedmont, situated on the confluence of the Bormida and Tanaro, a few miles from the Po. It was founded in 1178 by the Milanese, as a bulwark against the invasions of the German emperors, and has in modern times again received significance as a national Italian fortress against Austria, since the campaigns of 1848 and '49. Though up to the beginning of this century its fortifications were but old-fashioned and indifferent, the French in vain besieged it in 1657, and Prince Eugene of Savoy, in 1707, only took it after a protracted defence. The principal strength of the fortifications as they at present exist, consists in the additions made by Napoleon after the annexation of Piedmont to France. It is the only fortress Napoleon built, and in its works Montalembert's new system of casemated batteries for the defence of the ditch, was applied for the first time, though only partly. Napoleon especially strengthened the citadel, a six-fronted bastioned work, with many outworks, and constructed a bridge-head on the opposite side of the Bormida. The Piedmontese government has recently resolved to add more works to the fortress, which, if the passage of the Po at Valenza were properly fortified, might become the nucleus of a vast entrenched camp in a commanding position. The city has a college, theological seminary, 18 churches, including a cathedral, and manufactories of linen, silks, cloths, and wax candles. Population, with the suburbs, 86,000.

ALESSIO, a town of European Turkey, situated near the mouth of the river Drin, in the mountainous country of Albania. Population about 8,000. It was in the fortress of Alessio that Scanderbeg was buried.

ALESTAKHRI, **ABOU ISAAC**, Arabian geographer, also called **ALFARESY**, from the name of the province of Fares, of which he was a native, lived in the 10th century A. D. In 951 and following years, he travelled over the whole Mohammedan world, and gives a descrip-

tion of each country, commencing with Arabia. As this treatise was executed on a larger plan than any predecessor, it has been made the basis of many later works.

ALEUOMETER, literally measurer of flour. An instrument invented in England by Mr. Borland for ascertaining the amount and quality of the gluten in flour. It consists of a hollow cylinder of copper, about 6 inches long and about $\frac{3}{4}$ of an inch in diameter. It has two principal parts; one about 2 inches long is closed at one end, forming a cup, capable of containing about 210 grains of fresh gluten, and screws into the other part of the cylinder. This, being charged with gluten, is heated to about 420° in an oil bath. The gluten by this treatment swells, and according to its rise in the tube (which may be measured by a graduated stem) its quality is judged of.—Good flour furnishes a gluten which increases 4 or 5 times its original bulk, and gives the odor of hot bread; but bad flour gives a gluten which does not swell, but becomes viscid and nearly fluid, adhering to the sides of the tube, and giving off occasionally a disagreeable odor.

ALEUTIAN ISLANDS, or the **ARCHIPELAGO OF CATHARINE**, a series of islands between lat. 52° and 58° N. and long. 172° and 178° E., between America and Kamtchatka, separating the Pacific from Behring's sea, and forming an arched insular bridge between the northern points of the two continents. Five distinct groups compose the Archipelago: 1, Behring islands; 2, Sasignan islands, or the Aleuts proper, with the islets, Attu, Agattu, and Semitshi; 3, islands of Khao, or Rat islands; 4, Negho or Andreanov islands; 5, the Fox islands. The island Unimak is the largest of all. All are rocky, and bear the signs of violent geological convulsions. Smoking craters and boiling springs on many of them attest a still uninterrupted volcanic activity. Indeed, these islands form the link between the volcanoes of western America and those of Kamtchatka. The shores are generally of difficult access. The climate is harsh, and marked by extremes, and the vegetation scanty. Attempts have been made to plant the northern pine, but they have proved unsuccessful. Potatoes succeed, however, on a few spots. The great wealth of these islands consists of fish, foxes, dogs, reindeer, seals, and sea-otters. The inhabitants, about 6,000 souls, are a branch of the Kamtchatkan race. They have been converted to Christianity by Russian missionaries of the diocese of Kamtchatka. Their occupation is fishing and hunting; their character gentle but independent. Since 1799, the Aleutian islands have been governed by the Russian-American fur company, whose principal establishment is at Alexandria on the island of Kodiak. When the natives become of age, they enter the service of the company for 4 or 5 years, and take their pay in kind; after that period they can hunt and fish on their own account, but must sell their game to

the company. The selling of spirituous liquors to the natives is prohibited. These islands were first discovered by Behring in 1728, and were visited by Cook in 1778. Russia took possession of them in the last century. Some ethnologists suppose that they once formed a bridge through which the primitive race of man in northern Asia, either of the Mongolian or Finnic-Tungusian, or Kamtchatkan family, crossed to America and peopled a part of this continent.

ALEWIFE (*Alosa tyrannus*, Latrobe). This fish is also called spring herring, and in the British provinces, gasperau, or American alewife. It appears in great numbers in Chesapeake bay, from the south in March, on the New York and New England coasts with the shad in April, and in the British provinces about May 1. Like the shad, it ascends the northern rivers to deposit its spawn. In the bay of Fundy the alewife is abundant; in the gulf of St. Lawrence it is less common, and of smaller size; the bay of Miramichi appears to be its extreme northern limit. It ascends rivers, generally to the head of the tide, and returns to the sea in July. The fishery is prosecuted with small meshed seines, drawn across the streams, and so successfully, that hardly a fish escapes; the fishing lasts about 6 weeks, commencing as soon as the rivers are clear of ice. It prefers a soft, muddy bottom, and turbid water, and its favorite food is shrimps, and the shad worm. The length of the alewife is 4 to 12 inches; the body is compressed; the head small, with golden gill-covers; the eyes large, with silvery irides and black pupil; the mouth very large, the lower jaw slightly the longer, and the upper jaw deeply notched in its centre. The color on the back is bluish purple; the sides are light copper color, beneath silvery; on the sides are 4, 5, or even more indistinct greenish lines passing from the head to the tail; just behind the upper angle of the gill cover is a deep black spot. The scales on the body are very large, and deciduous; the entire abdominal edge is serrated by strong bony spines, largest between the ventrals and the vent; the dorsal fin is single, and the tail is deeply notched. Though thin, dry, and inferior to the herring and the shad, the alewife is a valuable fish. Immense numbers were formerly caught in the New England rivers, especially the Charles, Taunton, and Merrimac rivers of Massachusetts; of late years the fishery has greatly diminished, from the effects of dams, saw-mills, floating timber, and other obstructions to their easy ascent to their favorite breeding places. In Taunton river, once quite celebrated for this fishery, and in the Merrimac, the alewives are now comparatively uncommon; they prefer the smaller and unobstructed streams. From the first two streams over 5,000 barrels were annually taken; at Watertown, Mass., about 700 barrels was the average quantity. They were first pickled and afterwards salted, and exported principally to the

West Indies. Their value was from \$1 50 to \$2 00 a barrel. For home consumption, they are salted and smoked, like herring. The fishery in the British provinces is more valuable. The quantity taken in the harbor of St. John, N. B., averages from 12,000 to 20,000 barrels annually, most of which are sent to Boston.

ALEXANDER. I. A county in the N.W. part of North Carolina, which was formed in 1846 from the counties of Wilkes, Caldwell, and Iredell. In 1850 it contained a population of 5,220, of whom 4,677 were free and 543 slaves, and produced 165,805 bushels of corn, 10,501 of wheat, and 28,996 lbs. of butter. The county contains 4 tanneries and 16 churches. Capital, Taylorsville. **II.** A county in the S. extremity of Illinois, at the confluence of the Ohio and Mississippi rivers, the latter forming its S. and S. W. boundary, and separating it from Missouri. The face of the county is low and level, and therefore in some parts liable to inundation, but the soil is fertile. In 1855, the population was 2,927, and the products in 1850 were 92,920 bushels of corn, 1,698 of wheat, and 19,810 lbs of butter. The southern terminus of the Illinois Central Railroad is at Cairo in this county. Capital, Thebes.

ALEXANDER, called **THE GREAT**, son of Philip of Macedon, and of Olympias of Epirus his wife, was born in the autumn of 356 B. C. Neither he nor his father was a Greek in character, both having the self-will of barbarian princes. Both were, however, partially imbued with Grecian sentiment and intelligence. Alexander's first tutor was a Greek, Lysimachus, and the first thing which the child learned was Homer's Iliad. At the age of 18, he received further instruction from Aristotle, and enjoyed this teaching for 8 years, being then warmly attached to that philosopher. His interest in Greek heroic and tragic poetry lasted through his whole life, and survived his personal affection for Aristotle. During his father's lifetime he shared in his wars, and in the government of the kingdom, early showing a strong will, and an imperious temper. He mounted the throne at the age of 20, his father having been murdered, and it is supposed by some that the son was partially acquainted with the conspiracy. Alexander at the start put to death several of the conspirators, as well as many relations of his father's second wife, and soon after Philip's infant son was killed by his order. At the head of an army he at once entered Greece, strengthened the submission of the Greek republics, and at a general Grecian assembly at Corinth, was made commander-in-chief, with full powers on land and sea to prosecute the war against Persia. In the following spring in an armed excursion against various tribes of Thracians, and others north of Macedonia, he crossed the Danube with his army without a bridge in the face of an enemy. During this campaign rumors of his death arose in Greece. Demosthenes and the patriots of other Greek cities, and above all the

Thebans, considered this to be a propitious moment to emancipate Hellas from Macedonian domination. The Thebans rose in arms. Alexander with matchless celerity returned with his army in 18 days from beyond the north of Macedonia to Boeotia. After a murderous storm, he took Thebes, razed that ancient and legendary Grecian city to the ground, leaving only the house of Pindar standing, and sparing the descendants of the poet from being sold into slavery, which was the fate of all the other Thebans. This blow crushed the aspirations of the Greeks for freedom.—Alexander now completed his preparations for the invasion of Asia. In March or April 384 B. C., he crossed the Hellespont from Sestos to Abydos, with a force of between 80,000 and 40,000 foot, and 4,500 horse. This army was composed principally of Macedonians, with Macedonian commanders, and had not a spark of genuine Greek feeling in it. In full armor, like Protesilaus, the hero of the Homeric legend, Alexander was the first to tread the Asiatic shore. At Ilium (Troy) he performed various rites and sacrifices in honor of the ancient heroes, a manifestation of that legendary sympathy which formed the only real relation between him and the Greeks. A powerful Persian force defended the passage of the Granicus. Alexander was the first to enter the river at the head of his army, and fought foremost with great personal courage. He won a decisive and terror-striking victory. Nearly the whole of Asia Minor submitted to him, and the few cities that attempted to resist were taken by storm. At Tarsus in Cilicia he was seized with a violent fever, after bathing in the chilly waters of Cydnus, and owed his recovery to the skill of his physician, Philip. Darius, commanding in person an army of 600,000 footmen, met him on the banks of the Issus, and one of the most important and decisive battles recorded in history was fought there. Darius was defeated with immense slaughter, and the loss of his camp and treasures; while his mother, his wife Statira, the handsomest woman in Asia, his infant son and two daughters, fell into the hands of the victor. Syria, Palestine, and Phœnicia submitted, with the exception of Tyre, which was taken after a siege which the desperate defence of the Tyrians prolonged for 7 months. Alexander was twice obliged to construct a solid mole more than 200 feet wide, across the half mile channel between the mainland and the islet on which Tyre was situated. At the final storm the carnage was terrible; and then 2,000 prisoners were hung on the walls, 80,000 inhabitants sold into slavery, and the ancient and free-spirited population wholly extirpated.—Alexander now marched towards Egypt. Only the city of Gaza, commanded by Batis, a eunuch, resisted him. The town had hitherto been thought impregnable, but Alexander surrounded it with artificial mounds equal in elevation to the hill on which the stronghold was situated, and after having been beaten off in several attacks, in one of which

he was severely wounded, took the city, and slaughtered nearly the whole population. Batis, covered with wounds, was taken prisoner. The infuriated victor ordered his feet to be bored, and his living body to be attached to a chariot, which he drove himself in full speed through the streets. Thus he copied the ignominious treatment which, according to the legend, was inflicted by Achilles on the dead body of Hector. Egypt submitted without offering the slightest resistance. Alexander founded the celebrated city of Alexandria, and marched through the sandy desert into Libya to the temple of Jupiter Ammon. The priest addressed him as the son of the god. In his self-adoration, Alexander henceforth believed such to be his parentage, to the great dissatisfaction of his Macedonian army and companions, who were highly incensed at this insolence and disregard for the memory of his father, Philip. Alexander was now master of the whole eastern Mediterranean coast, and of all the islands, and returned to Asia in search of Darius, who was lost in the immense dominions which still remained to him. Alexander crossed the Euphrates and Tigris, and in the plains of Arbela, in Syria, reached the Persian army, made up of the contingents from the Caspian sea, the rivers Oxus and Indus, the Persian gulf, and the Red sea. It is said that this army numbered 1,000,000 of infantry, 40,000 cavalry, 200 chariots armed with scythes, and 15 elephants; their first appearance on a field of battle west of their native country. Alexander commanded 40,000 foot and 7,000 horse. The battle was severely contested, but at last the Persians were utterly routed. The Persian empire was destroyed. Its two capitals, Babylon and Susa, surrendered, with their treasures, about \$60,000,000 in gold and silver, accumulated there by the Persian kings. From Susa, Alexander marched into Persia proper, the cradle of the earlier Persian conquerors, overpowering various barbarian mountain tribes on the march. Persepolis and Pasargada, the two capitals of the Persian race, fell into his hands. The treasure found there amounted to \$100,000,000. He set fire to Persepolis, the male inhabitants were slain, the females dragged into servitude. Next he continued the conquest of the eastern part of the Persian empire, following the flying Darius into Media and Hyrcania. While approaching the S. E. side of the Caspian sea, he learned that Darius had been murdered by his revolted satraps. Alexander ordered the body to be buried with regal pomp in the royal sepulchres of Persia. Pursuing the satraps across Parthia he entered Aria, in the region adjoining the modern Herat. Thence he marched into Drangiana, the modern Seistan. While at the chief town of this province, on the plea of a conspiracy against his life discovered among those nearest his person, he condemned to death Philotas, one of his first generals, and son of Parmenio, his best captain, and the

companion in arms of his father Philip; and after this he ordered the murder of Parmenio himself. He had now fallen into habits of the utmost intemperance, and full of suspicion like all tyrants, he opened the letters written by his officers and soldiers to their relations in Europe. He reduced Gedrosia, Arachosia, and the Paropamisadae, modern Afghanistan, and the western part of Cabool—founding various cities of Greeks and Macedonians. Then he overran Bactria, crossed the Oxus, marched to Sogdiana, passing through the principal city Maracanda, now Samarcand, and reached the river Jaxartes, which he thought was the Tanais, Don, then considered to be the boundary between Europe and Asia. On its banks he founded a city named Alexandria, as a fortress against the nomadic Scythians, in whose pursuit he reached the present khanat of Kokand. This was the utmost limit of Alexander's northern progress. During his stay at Samarcand, on his return, in a drunken orgy, he killed with his own hand his general, Clitus, who had saved his life at the battle of the Granicus. The impulse for this crime was given by Clitus, who rebuked Alexander for his overbearing pride and infatuated belief in his divine origin. After this bloody deed, the murderer, seized with remorse, passed three days without food and drink. In Bactra (Balkh), the capital of Bactria, he celebrated an oriental marriage between himself and his captive Roxana, and in the festivities of this ceremony demanded prostration and worship from the Greeks as well as the Asiatics. Some Greek philosophers, and Anaxarchus among them, led the way in this degradation, but Callisthenes, the friend and correspondent of Aristotle, opposed it. This person was falsely accused of a conspiracy, tortured, and put to death by order of Alexander, who was now burning with hate against every manifestation of an independent spirit, even involving in this animosity Aristotle, who fortunately was at Athens.—From Bactra, Alexander marched southward to the mountain range of Paropamisus or Caucasus, now known as the Hindoo Kooh, and went into Cabool, descending along the right bank of the Indus, and reducing various mountain tribes on the way. In the early spring, 326 B. C., he crossed the Indus at or near Attock, a passage now much used. He entered Taxila, whose prince, Taxilus, at once submitted, becoming a tributary ally, and furnishing a contingent to the Macedonian army. Alexander marched to the river Hydaspes (Jelum), and on its farther side met the Indian prince Porus, with a formidable force, which he defeated in a sanguinary battle, taking Porus prisoner. The latter, however, had his possessions restored and became an ally and friend of Alexander. After conquering various Indian princes and nations, Alexander passed the river Acesines, and advancing across the Punjab to the river Hydraotes, or Ravee, took the city of Sangala by storm and demolished it, putting to death 17,000 persons, and making

70,000 captives from various free Indian tribes. Thence he marched to the river Hyphasis (Sutlej). Here for the first time, the Macedonians of the army, wearied by the unintermitted hardships, and averse to plunging further in unknown deserts and regions, refused to cross the river. The troops resisted his entreaties, and Alexander gave the order to return. To mark the limit of his eastward progress, Alexander erected 12 altars of extraordinary height on the western bank of the Hyphasis. He embarked with a part of his army on the Hydaspes, and sailed down to the confluence of this river with the Indus, which he descended to its junction with the Indian ocean, disembarking perpetually to attack, subdue, and slaughter the tribes near the shore. Nearchus his admiral, took the fleet from the mouth of the Indus round the Persian Gulf to that of the Tigris, while Alexander himself marched westward along the shores of the gulf, then through the desert of Gedrosia to the city of Pura (Bahnpoor). In this march the army underwent much suffering from want of food and water in the trackless sands. To compensate for this, and in imitation of the festivals of Dionysus, Alexander and his army marched seven days in drunken, bacchanalian procession through Carmania (Kerman), entering Persia, and finally reaching Susa. Here he plunged more and more into eastern habits, showing an all-absorbing love of servility, adopting the Persian costume and ceremonial, making a eunuch Bagoas his favorite, and contracting an Asiatic marriage with two additional wives. He sailed down the river Pasitigris (Karoon) to the Persian gulf, and entered the mouth of the Tigris. He wished for naval glory, projected the circumnavigation and conquest of Arabia, and devoted his indomitable energy to the construction of an immense fleet in the Phœnician ports. After the vessels were built, they were taken to pieces, and conveyed on the Euphrates to Babylon, which was transformed into a harbor for the purpose, where other ships were built. At this time he received embassies from all the nations around the Mediterranean, from the Iberians, Scythians, Gauls, and even from the Romans, who then were of no great importance. After arriving at Babylon, he spent several days in surveying the surrounding marshes, where he contracted the germs of a violent fever. This malady was developed and heightened by his daily revelries, and after a few days he died in the afternoon of a day of June, 323 B. C., after a life of thirty-two years and eight months, and a reign of twelve years and eight months.—His reign and epoch form one of the pivots of the world's history. By it Asia and the East were interwoven with Europe and Greece, while the free Greek communities were crushed and democratic progress and liberty entombed. Alexander's career was not that of a great ruler and statesman, but rather of a general and soldier. His generalship, his knowledge of com-

mand, his strategic combinations, his far-reaching plans for prosecuting campaigns, his constant foresight and fertility in difficulties, his rapidity of movement, are almost without a parallel in history, when we consider the time, the regions where he acted, and the resources at his disposal. With all his exuberant courage and his sanguine temperament, nothing was ever omitted in the way of systematic military precaution. But all his great qualities were useful only against enemies, and in this category we must reckon all mankind, known or unknown, except those who submitted to him. His voracious appetite for conquest was unabated to his death. But he had no grand and beneficent views on the subject of government, and no intentions for the improvement of mankind. The acquisition of universal dominion was the master-passion of his soul. As a conqueror he was neither Macedonian nor Greek. He had no attachment for any special nationality, but looked on all mankind as on his subjects. He was neither imbued with the political maxims of Aristotle, nor intent on the diffusion of Hellenic culture. He treated Greeks and Asiatics alike, not by elevating the latter, but by degrading the former. He was offended by the free speech of Greeks and Macedonians, and instead of Hellenizing Asia, he tended to Asiaticize Macedonia and Hellas.

ALEXANDER of APHRODISIAS, surnamed the Expositor, from the superior excellence of his commentaries on Aristotle, was a native of Caria, and flourished in the 3d century. His most important work, on Fate, in which he controverts the doctrine of necessity, was published at Zurich, in 1894. His other writings, mostly made up of notes upon Aristotle, were highly valued by the Arabians.

ALEXANDER, surnamed BALAS, king of Syria from B. C. 150 to 145. He pretended to be a natural son of Antiochus Epiphanes, king of Syria, and his claim to succeed him was supported by the Romans, and by several of the princes of Asia. He defeated the troops of Demetrius I., and established himself upon his throne, after which he abandoned himself to pleasure. Demetrius Nicator, the son of Demetrius I., took advantage of this to make war upon him, and compelled him to fly to Arabia, where he was murdered by the chieftain with whom he had taken refuge.

ALEXANDER JANNÆUS, ascended the Jewish throne 104 years B. C., and died in 81 B. C. From his barbarity he was known as "the Thracian." During a rebellion of the Pharisees, he crucified 800 of the most illustrious of his captives in one day.

ALEXANDER SEVERUS, Roman emperor from 222 to 235 A. D., the son of Gessius Marcianus and Julia Mammæa, was born at Arce in Phœnicia, in the temple of Alexander the Great, during the attendance of his parents there at a religious festival. The period of his birth is somewhat uncertain; but the greater number of his biographers and historians agree

in ascribing it to the autumn of 205 A. D. His original name was Alexianus Bassianus. On the elevation of his cousin Eliagabalus to the purple, he accompanied his mother to Rome. In 221 A. D. he was adopted by the emperor, and created Cæsar, pontiff, consul-elect, and *princeps juventutis*. He now laid aside the name of Alexianus Bassianus, and assumed that of M. Aurelius Alexander. No sooner was he raised to the dignity of Cæsar, than he became an object of jealousy and hatred to the emperor. Eliagabalus no longer regarded him as a relative and friend, but as a dangerous rival, whose destruction was essential to his own safety. All his plots against the life of Alexander were, however, rendered abortive by the watchfulness of his mother, and the affection of the soldiers who ultimately avenged his injuries by sacrificing his enemy. On the death of Eliagabalus, he was proclaimed emperor by the Prætorians, whose choice was immediately confirmed by the senate. He ascended the imperial throne A. D. 222, at the age of 17. He now took the appellation of Severus, as he was ambitious of being thought a descendant of his predecessor Septimius. Nine years of his reign were years of peace, undistinguished by great wars or brilliant victories. In these years, reforming abuses which had long exhausted the resources and paralyzed the energies of the state, promoting to offices of dignity and trust men of merit and capacity—restoring health to the empire, were his chief occupations. In 231, however, these beneficent labors were interrupted, and the emperor had to depart from Rome in order to assume the command of the eastern legions, and to defend his Asiatic provinces from a Persian invasion. Crossing the Euphrates with his army, he encountered the hostile hosts in Mesopotamia, and defeated them with great slaughter. But he did not follow up his victory. Having received intelligence that the Germans were up in arms, and preparing for an irruption into Gaul, he hastened back to place himself at the head of the Rhenish army, and to frustrate the designs of the barbarians. He was, however, destined to gain no glory in this Teutonic war. At the very opening of the campaign he was waylaid and slain by a party of mutineers, who had probably been instigated to the deed by his successor Maximinus. This admirable man and model monarch was in the 30th year of his age and 14th of his reign, when he was thus prematurely cut off.

ALEXANDER, the name of several popes of the Roman Catholic church. I. The first pope of that name, a Roman by birth, governed the Roman church from A. D. 108 to 116, and was beheaded by the order of the Emperor Hadrian. A beautiful church is about to be erected over his tomb. II. One of the so-called Hildebrandine popes, elevated to the holy see, chiefly through the influence of Hildebrand, arch-deacon of the Roman church for a long period paramount at Rome, before his own election to

the papal throne. This pontiff, whose family name was Anselmo Badagio, was born in Milan, and was bishop of Lucca, at the time of his election. He was crowned Sept. 1, A. D. 1061, and reigned 11½ years. The first few years of his reign were troubled by a contest with an anti-pope named Cadalota, who took the name of Honorius II. He carried out with great vigor and ability the measures of the reforming party in the church of which Hildebrand was the life and soul, against simony and concubinage among the clergy, and the intrusion of unworthy bishops into the episcopal sees through the influence of princes and nobles. He deposed many of these unworthy bishops, and made great efforts to restore ecclesiastical discipline. By the advice of Hildebrand, he pronounced in favor of the claims of William of Normandy to the crown of England, as successor to Edward. After the success of William's arms he sent, as legate into England, Bishop Ermenfroi, and the Cardinals Peter and John, who crowned King William, and afterward held a council at Winchester, in which Stigand, the excommunicated archbishop of Canterbury, who had intruded himself into that see during the lifetime of the Archbishop Robert, was deposed. The celebrated Lanfranc, formerly the preceptor of Alexander, was placed in that see, and afterward received by the pope with great honor, during a visit which he made to Rome. This pope maintained also close relations with the emperor of Constantinople, and sent a legate to his court. He interested himself greatly in the welfare of the Greek Christians, who, as Rohrbacher remarks, seem to have been partially, if not wholly, reconciled to the Roman church at this time. A number of the epistles of Pope Alexander are extant, among which is one addressed to the bishop of France, in which he condemns in the strongest terms the cruelties practised by some Christians on the Jews. III. This pope, whose family name was Rolando Paparo, a native of Sienna, and cardinal and chancellor of the Roman church, was elected Sept. 7, 1159, and died Aug. 1, 1181, after a reign of nearly 22 years. He had to sustain a long conflict with the Emperor Frederic Barbarossa, and 3 successive anti-popes supported by him. The last of them, called Calixtus, came to him at Frascati in the year 1178, threw himself at his feet and demanded absolution, which Pope Alexander granted him immediately and invited him to his own table. In the year 1167, Alexander excommunicated the emperor, and absolved his subjects from their oath of allegiance. Ten years afterward, Frederic submitted to the pope, and was absolved from his excommunication, at Venice. On this occasion he paid the ordinary homage to the pope by kissing his foot, and also led the mule on which he rode by the bridle. The story that the pope put his foot on his neck appears, however, to rest on no historical foundation. Alexander entered into correspondence with the Greek

emperor Manuel, with the view of inducing him to consent to a project much favored at that time in Italy, of transferring the imperial throne to Rome, and thus effecting a reconciliation of the Greeks to the Roman church, which would be likely to prove durable. These negotiations, however, had no result. He also held a council at Tours in France, where he had taken refuge in the early part of his pontificate, against the Albigenses. During his reign, and supported by him, the celebrated Thomas à Becket resisted the pretensions of King Henry II., and was assassinated by his orders in the cathedral of Canterbury. St. Thomas à Becket and St. Bernard were afterward canonized by him, a right which he first reserved exclusively to the holy see by a decree promulgated at the council of Tours. It was this pope who instituted the ceremony of the espousal of the Adriatic by the doge of Venice. The last remarkable act of his life was the celebration of the third general council of Lateran at Rome, A. D. 1179. Voltaire asserts that he proclaimed the doctrine that no Christian ought to be held as a slave, and says that "this law alone ought to render his memory dear to the whole world." (*Essai sur les Mœurs*, c. 78.) De Maistre and others have followed him in this statement. Carriere, who is sustained by Archbishop Kenrick, in the last edition of his "Primacy," observes that no such law can be found. Certainly there was none such made by the council of Lateran. That council merely decreed that no Jew or Saracen should hold a Christian slave. Bancroft, however, quotes a passage (History of the United States, vol. i., p. 163, 10th ed.) from a letter of Alexander, in which he asserts the principle that "nature having made no slaves, all men have an equal right to liberty." IV. RINALDO DE SEGENI, a noble Roman, nephew of Gregory XI., and cardinal-bishop of Ostia, was elected pope at Naples, Dec. 12, 1254, and died at Viterbo, May 25, 1261, after a reign of 6½ years. During his reign, Italy was torn in pieces by the rival factions of the Guelphs and Ghibellines, and the states of the church were devastated by the celebrated tyrant Manfred. He declared a crusade against Manfred, which proved unsuccessful, even with the aid of Henry III. of England, to whose second son Edmund he gave, in quality of suzerain, the investiture of the kingdom of Sicily. During his reign occurred also the crusade and captivity of St. Louis of France. By request of this prince, the inquisition was established in France, A. D. 1255. This pontiff was compelled to pass the latter part of his life at Viterbo, on account of seditions among the Roman populace. He labored strenuously to reunite the Greek to the Roman church, and to combine the Christian nations against the Saracens, from whose formidable power Christianity and civilization were at that time in great danger. The hostility of the Venetians and Genoese prevented the success of his plans, and the chagrin which he experienced in consequence is said to have

caused his death. V. PETER PHILARGI, a native of Candia, elected pope by the general council of Pisa, June 26, 1409, died May 8, 1410, after a reign of 10 months. He was the child of very poor parents, left an orphan in his infancy, and obliged to beg his bread from door to door. A Franciscan friar detected his latent talents, and placed him in a convent, where he learned his rudiments. He was afterward sent to the universities of Oxford and Paris, where he distinguished himself greatly. On his return he became private tutor to the duke of Milan, who obtained his elevation to the archiepiscopal see of that city. Innocent VII. made him cardinal and papal legate in Lombardy. After his elevation to the supreme pontificate, he resided at Bologna during the short interval preceding his death. VI. RODRIGO LENZUOLO, or BORGIA, born at Valencia in Spain, A. D. 1481, elected pope Aug. 11, 1492, died Aug. 18, 1508, at the age of 72, after a reign of 11 years. He belonged on his mother's side to the illustrious Spanish family of Borgia, which is allied by blood to most of the royal houses of Europe, and from which St. Francis Borgia afterward sprang, a family whose name is unfortunately so closely associated in the memory with the crimes of Cæsar Borgia, that we feel an instinctive prejudice against any one bearing it. Until his 18th year, he applied himself with great assiduity and success to study, and was often employed by his father, an eminent soldier and statesman, in important affairs of business, in the management of which he manifested those extraordinary talents which made him afterward one of the ablest diplomatists and sovereigns of his age. At the age of 18 he embraced the profession of arms, in which he continued but a few years. His character was dissolute, and nothing was further from his thoughts than the intention to embrace the ecclesiastical state. He entered into a criminal relation with a Roman widow lady, residing with her two daughters in Spain. After her death, which followed speedily, he formed a similar connection with one of her daughters, the too-celebrated Vanozza, who was either then or afterward married to Dominic d'Avignon. By her he had five children, one of whom was Cæsar Borgia; and another, Lucretia Borgia, afterward Duchess of Este, from whom the present Queen of England is descended. It cannot probably be determined, with certainty, whether all these children were born during his military life or not. He remained in the army 6 years, and, at the age of 24, was summoned to Rome by his maternal uncle, who had just been made pope under the title of Calixtus III. He went with great reluctance, at the urgent solicitations of his uncle, who was well aware of his brilliant talents and accomplished education, and wished to give him a high station at his court. Having received holy orders, he was within a year afterward made archbishop of Valencia, cardinal, and vice-chancellor of the Roman church, in which

offices he continued until he became pope. He still secretly continued his criminal intercourse with Vanozza, who had followed him to Rome. He had succeeded from the outset in concealing his relations with this woman, and continued to do so for several years. He assumed the exterior of a pious prelate, visited the churches and hospitals, gave large alms to the poor, and gained for himself general esteem. Although Calixtus III., otherwise an exemplary pope, cannot be excused for precipitately hurrying his nephew into the ecclesiastical state and its highest dignities, yet he was probably ignorant of his immoralities, or was deceived by his outwardly decorous behavior into the belief that he had reformed his life and determined to live in accordance with his vocation. After the death of Calixtus, Pius II., Paul II., Sixtus IV., and Innocent VIII., successively occupied the pontifical throne; and, during this long period, Cardinal Lenzuolo continued to exhibit the character of an able, worldly-minded prelate, fond of power and splendor, constantly occupied with public affairs, and possessing many of the virtues which become a prince, without any of the sanctity of a Christian bishop. On the 11th of August, 1492, soon after the death of Innocent VIII., he was elected pope, being then 61 years of age. The pontifical states were at that time in a very disturbed condition. Powerful and insubordinate nobles fought with each other and oppressed the people, trade, commerce, and agriculture were in a depressed state, lawlessness prevailed, and the people consequently suffered greatly. The cardinals appear to have looked rather for an able sovereign, who could remedy their political disorders, exert a commanding influence over other monarchs, and administer with energy the exterior ecclesiastical regimen, than for a holy bishop and an example to the flock, in their choice. According to strictly Christian principles, we cannot exculpate them from the fault of acting too exclusively on the principles of human prudence and secular policy, in elevating a man, whose reputation was stained by the immoralities of his past life, to the pontifical throne. Alexander VI. was, however, an old man at the time of his election, and it is not certain that during this latter portion of his life he was guilty of any grievous offence against morality in his private conduct. He cannot be excused from a criminal partiality and tolerance toward the corrupt and cruel Cæsar Borgia, whom he elevated to high dignities, and retained in his confidence for a long time after his iniquity was fully manifest. But neither can he be condemned as having commanded or sanctioned the crimes which that infamous person committed under the tuition of Macchiavelli, the great master of modern statesmen.—In his public administration, Alexander VI. proved himself one of the ablest sovereigns of his time. At Rome, abundance succeeded to starvation, flourishing trade to stagnation, the equal administration of justice to lawlessness and violence, as soon as he as-

sumed the reins of government. On this account he was loved and honored by his temporal subjects, during his life and after his death. He was entirely devoted to business, slept but two hours during the night, and remained but a short time at the table. He never refused to hear the petition of a poor man, he paid the debts of the unfortunate debtor, and punished those who neglected their official duties. The great discoveries of Columbus and other navigators took place in his time. He confirmed the title of Ferdinand and Isabella to their acquisitions in the new world, and ratified the grant of the title of Catholic majesty, made by Innocent VIII. to the Spanish sovereigns. He also adopted measures for the virtual suppression of the military orders, which had become a nuisance in the state, and encouraged the founders of new and fervent religious orders better adapted to the spirit and wants of the age. During his reign the Moors were expelled from Spain, and the king of Georgia sent an ambassador to make the submission of his realm to the Romish church. He took an active part in the revolutions of the kingdom of Naples, and indeed exerted a decided influence on the politics of all Europe. Under him took place the execution of the celebrated Dominican Savonarola, in regard to whose character, life, and tragical death, various sentiments are entertained by the learned. In 1499, one of his sons was murdered and thrown into the Tiber, an event which made a profound impression on the mind of Alexander, and awakened in him the dread of the divine vengeance on himself for the sins of his past life, and his worldly and ambitious career. At that time he entertained the idea of abdicating his dignity, from which he was dissuaded by Ferdinand of Spain. He also appointed a commission of 6 cardinals to reform ecclesiastical discipline. Three years afterward, he had a narrow escape from a sudden death, by the falling down of the ceiling in a part of his palace. This remarkable deliverance affected him deeply, and after he recovered from the bruises he received at this time, he went publicly to the church to give thanks to God. These penitential sentiments produced no lasting change, however, in his character, and he soon after left this mortal stage, in which he had gained so much worldly glory and exhibited so little Christian sanctity, dying Aug. 18, 1508, of a tertian fever, after an illness of a few days. The atrocious crimes ascribed to this pope during his pontificate, rest on the suspicious authority of the Neapolitan poet Sannazaro, and other personal and political enemies, who wrote at a time when the epigram and pasquinade were made the vehicle of the most unscrupulous calumnies. On this account, Voltaire, Muratori, Mathias, Roscoe, and other writers, reject their evidence, and defend Alexander from the principal accusations made on their authority. VII. FABIO CHIGI, born of an illustrious family at Sienna, Feb. 13, 1599, elected April 7, 1655, died May 22, 1667, at the

age of 68, after a reign of 12 years. This pontiff was distinguished in his youth for his literary and poetical talents. He embraced the ecclesiastical state by the advice of St. Francis de Sales, whom he afterward canonized. Before his election, he filled several of the highest offices of the Roman church with credit. During his pontificate he was very zealous in the reformation of discipline. He confirmed the bull of Innocent X. against the five propositions of Jansenius, and prescribed a precise formulary condemning the principles of Jansenism which all persons concerned were required to sign. He finished the Sapienza, commenced by Leo X. after designs of Michael Angelo, and constructed the beautiful colonnade in the plaza of St. Peter's. VIII. MARCO OTTOBONI, son of the grand-chancellor of Venice, where he was born, April 19, 1610, elected Oct. 6, 1689, at the age of 79, died Feb. 1, 1691, after reigning 15 months. He studied at Padua and Rome, was successively bishop of Brescia and Frascati, and cardinal. He condemned the four articles of the Gallican Assembly, and assisted the Emperor Leopold I. and the Venetians with large sums in the wars against the Turks. He possessed a high degree of prudence, moderation, and political sagacity, and was very benevolent to the poor, but too much inclined to favor his own relations, having suffered the system of nepotism abolished by Innocent XI. to revive.

ALEXANDER, the name of several kings of Scotland. I. This monarch ascended the throne Jan. 8, 1107, and died April 27, 1124. He was a prince of singular energy and capacity, which stood him in good stead during the rebellions that disturbed his reign, all of which he suppressed. He was equally successful in repelling foreign aggression; his literary attainments were remarkable. The church found in him a generous patron. II. This prince reigned from Dec. 4, 1214, until his death, July 8, 1249. He stands conspicuous among Scotch kings for administrative ability, and for equity of character. He married the sister of Henry III., in the year 1221. His reign, likewise, was disturbed by frequent insurrections. III. Son of the preceding, succeeded him on the throne, and died March 16, 1286, of injuries resulting from a fall from his horse. He married the daughter of Henry III., and skilfully resisted the efforts of that prince to obtain a controlling influence over the administration of the affairs of his kingdom, without coming to any open rupture with him. Scotland enjoyed unaccustomed tranquillity during his reign.

ALEXANDER NEVSKOI, born 1219, died 1263, a Russian hero and saint, was the son of the grand-duke Jaroslaw of Novgorod. During the life of his father, Alexander fought against the invading Tartars, but notwithstanding his efforts, Russia was obliged in 1288 to submit to Mongolian domination. He was more successful in defending the northern boundaries against the encroachments of the

Danes, the Swedes, and the German Templars. He won a great battle against the Swedes in 1240, on the banks of the Neva, in the locality of the modern St. Petersburg; hence his surname of Nevskoi. In the year 1248 he beat the Templars on the frozen lake Peipus, near St. Petersburg. After the death of his father in 1247, he became the grand-duke of Vladimir, and the paramount lord of all the other sovereign Russian dukes. Pope Innocent III. attempted to unite the western and the eastern churches during the reign of Alexander, and sent an embassy to Russia for that purpose. The grand-duke positively refused the papal proposition in a written answer, in which he said: "We know the true teaching of the church; we will neither accept yours, nor know any thing about you." The grateful nation canonized him, and his name is preserved in the national songs. Peter the Great erected to his memory a great monastery on the spot where the battle was won, which is now used for educational purposes, and created an order or decoration of Alexander Nevskoi, the third in the list of Russian orders.

ALEXANDER I., PAULOWITICH, emperor of Russia, eldest son of Paul I. and of Maria Fedorowna, princess of Würtemberg, was born Dec. 17, 1777, died Dec. 1, 1825. His grandmother, Catharine II., took him almost from the cradle under her special care, and educated him as her successor, as her avowed intention was to have him ascend the throne over the head of his father. From childhood, therefore, his parents had no influence on him, and he grew up in indifference towards them, and with the idea of the utter incapacity of his father to rule Russia. Count Nicholas Soltikoff was intrusted by the empress with the duty of superintending his education, of which Catharine drew the plan with her own hand. Every possible branch was taught, except music and singing, which in the opinion of the empress absorbed too much time, and diverted the attention from other objects more necessary to a sovereign. In 1788 Count Soltikoff selected for a tutor to the young Alexander, Cæsar la Harpe, a Swiss from the Canton of Vaud, celebrated afterward in the history of his own country, as one of the originators and directors of the Helvetic republic. La Harpe inculcated in the mind of his pupil those so-called liberal ideas which then prevailed among the higher classes of the 18th century. Toleration, philanthropy, admiration of truth, and the ardent wish to render his future subjects civilized, good, and happy, were from his childhood familiar to the future czar. Sometimes he dreaded the task before him, and in his dreams wished to escape with his then youthful friend Prince Czartoryski to America, and to live there as a private citizen. In 1793, at the age of 15 years, Alexander was married to Louisa Maria Augusta, princess of Baden, more generally known under the name of Elizabetha Alexowna, then scarcely 14 years old. This marriage, though celebrated at the

time by poets in all languages, was not a happy one. Catharine died four years afterward, and was succeeded by her son Paul I., whose short reign was ended by murder. Alexander stands accused of having been accessory to this crime. He was acquainted with the conspiracy, whose chief, Count Pahlen, persuaded him that his mother and his brother Constantine were all in danger of losing their liberty, and even their life, from the jealous suspicions of his father. Alexander, fully believing his father incompetent to reign, gave his consent to the dethronement, which was represented to be the aim of the conspirators. Once on the throne, the young czar attracted the attention of the world, and his generous qualities promised a brilliant future. Thus Klopstock celebrated his advent in an ode dedicated to humanity. Those expectations were realized by the first actions of the czar. He began by releasing and indemnifying the victims of the violent injustice of his father, and recalled many who had been exiled to Siberia. He brought the government back to the principles laid down by Catharine; he kindled civilization among the masses, made efforts to establish the reign of law, and to create a public spirit among the people; and he accomplished radical reforms in the administration. He abolished the secret tribunal established by Paul, suppressed the censorship, and reorganized the board constituted by Catharine for the creation of a national code. He attempted to introduce a kind of publicity in the administration, by ordering every minister to publish yearly reports. He renewed the ukase issued by Elizabeth in 1750, abolishing torture, which, however, continued to be partially applied even under him. He also renewed the ukase of Catharine, in virtue of which hereditary estates could not be confiscated, and likewise proclaimed that henceforth the czars should not give away estates inhabited by crown peasants, but lands alone. He prohibited the public exposure of serfs in markets for sale, and allowed them to be sold only with the land to which they were attached. He even prohibited the advertising of such sales in the public journals. All his tendencies and acts were inspired by the love of justice and humanity. He chose for assistants in the labors of his reign men of large and clear minds, devoted to his reformatory ideas. Among these were Czartoryski, Novosiltzoff, and Speranski. He desired to be beloved by his subjects. He was impressible, enthusiastic, and easily influenced, not steady and persistent. His mode of life was simple and unostentatious, his manners amiable, refined, and elegant. One of his principal aims was to give a powerful impulse to public education, as well as to encourage and develop trade and industry. With this view he concluded commercial treaties with various European and American powers, and published new regulations for navigation. He protected the arts, and in order to stir up the intellectual powers of the people allowed his subjects of various classes, except those

serfs who were private property, to select their own trades and pursuits. The raw products of Russia, and even some manufactures, now began to appear in the marts of Europe. In 1809 he erected 8 universities at St. Petersburg, Charkoff, and Kazan, and added to them afterward that of Dorpat in the German Baltic provinces. He also reorganized that of Wilna, for his Polish subjects, whom at that early epoch he treated generously, flattering them with hopes of the reconstruction of their kingdom. He founded many gymnasia and high schools, ordering their number to be increased to 204, with 2,000 subordinate elementary schools. This project was, however, only partially executed. He was wont to travel over the country in every direction, seeing persons of all classes and receiving their memorials. He scrupulously observed the ordinances of the national church, but later in life he became a pietist and mystic, at the same time that he turned against the liberal politics of his youth.—At an early period in his career Alexander was entangled in the great events which shook Europe in the beginning of the present century. The greatness of Napoleon, then first consul, impressed his imagination. His father had commenced a friendly intercourse with Napoleon, which the son continued to entertain. On Oct. 8, 1801, he concluded a treaty of friendship, and when next year a general peace was established by the treaty of Amiens, the new territorial organization of Germany was regulated by the two. But when the first consul, after making himself emperor, violated the territory of Baden, executed the Duc d'Enghien, and announced his purpose to assume the crown of the newly created kingdom of Italy; when he prepared to destroy the independence of the Batavian republic, and occupied with his armies almost the whole coast of northern Germany, Alexander put forth a solemn protest along with a warning against a continuance in this course of usurpation. Finally, although a war was brewing between Russia and Turkey, and another actually waging against Persia, Alexander entered the third coalition to overthrow Napoleon formed by Sweden, England, and Austria. On Oct. 5, 1805, a Russian army debarked in Pomerania, and at the same time another traversed Prussia, although that power was neutral. The battle of Austerlitz, Dec. 2, 1805, destroyed the coalition. Alexander barely escaped from being made prisoner by a French general cutting off the retreat of his escort. The czar pledged, in writing, his word of honor to this general that an armistice had been concluded, which, however, was not the case. The Russian troops retreated to Silesia, and Alexander returned to St. Petersburg to prepare new armaments, when his ally Francis of Austria made peace with the enemy. The czar, however, refused to ratify the treaty made in Paris by his minister D'Oubril, and formed an intimate alliance with Prussia. He became

inflamed with Platonic love for the queen, Louise, to whose husband Frederic William III. he was bound by the ties of a strong friendship. This new coalition had no better luck than its predecessor. Marshal Benningsen was beaten at Eylau and Friedland; Kamenaki defeated at Pultusk, retreated to Lithuania, after the Prussian forces had been annihilated at Jena and Auerstadt. The Russian armies reentered their own country, and the king of Prussia was left in possession of only the city of Memel, on the Russian frontier. At the same time, however, the Russian arms were more successful in the war with the Turks. The Serbs rose against the Porte, and Admiral Seniavine beat the Turkish fleet in the Archipelago. Prussia being annihilated, and Napoleon at the threshold of Russia, Alexander was forced to negotiate. In June, 1807, a ferry boat was constructed on the river Niemen, the frontier between Prussia and Russia, and the two emperors met on board. In the course of their now almost daily intercourse, Napoleon not only bewitched Alexander by his genius and his manners, but did not disdain to flatter the foibles of the czar, whose former resentment gave way to the most enthusiastic friendship and admiration. By the treaty of Tilsit, now concluded, Alexander got from the Prussian spoils the district of Bialystock, in Lithuania. He entered warmly into all the Napoleonic schemes, and accepted the continental system, though it was pernicious at the start to the agricultural interests and the exporting trade of Russia. Gustavus Adolphus IV. having rejected every plan of accommodation with France or Napoleon, refusing the invitation of Russia to exclude English vessels from Swedish harbors, Alexander declared war against Sweden, invaded Finland, and conquered that long-coveted duchy. The war was not yet ended, when the interview of Erfurt took place, Sept. 27, 1808. Here culminated the friendship of the two emperors, who, representing the west and the east, decided the destinies of Europe. The resistance of the Spaniards, and English subsidies, encouraged the court of Vienna to appeal to arms for the third time, in 1809. Alexander as the ally of Napoleon occupied Galicia, and at the peace got a slice of it. In Turkey, the fortresses of Roostchook, Giurgevo, and Silistria were taken, and the bulk of the Turkish army on the left side of the Danube laid down their arms before Kutusoff. The war with Persia was also successful.—In the interior, Alexander continued the work of reform. The exclusion of English manufactures gave activity to domestic industry. In 1810, he reorganized the council of the empire, and formed 8 separate departments or ministries. He regulated the value of the currency; introduced a new organization into Finland, and in 1811, inaugurated the church of the holy Virgin of Kasan, one of the great monuments of St. Petersburg. About this epoch, a revulsion took place in his feelings toward Na-

pooleon, and he inclined to the ancient party of his nobles, who were enemies of France, and of domestic reforms, and partisans of England. Under this influence he exiled some of his former favorites, who for years had labored with him in the task of reform. Napoleon now occupied the duchy of Oldenburg, and Alexander refused him his sister in marriage. Coolness and dissatisfaction grew up between the two courts. The immense majority of the Russian nobility, impoverished by the continental system, were hostile to the French alliance. Animosity increased, and the war of 1812 broke out. England and Sweden alone stood by Russia—at that time. helpless and negative allies—but the treaty of Bucharest, concluded by the mediation of England, on terms wholly advantageous to Russia, brought into the interior the armies from the Pruth and the Danube. Napoleon rapidly crossed the Niemen, and invaded Russia, directing one part of his forces north toward St. Petersburg, while he himself pressed with the mass upon the centre of the empire toward Moscow. Alexander was taken almost unawares. He adopted the plan of Gen. Barclay de Tolly, retiring slowly step by step, to draw the enemy into the interior, destroying every thing in the retreat, and thus facilitating the union of the central army with that coming from Turkey. He made an appeal to the religious and national feelings of the Russians, and organized levies *en masse*. The people were even more excited than their ruler. After the battle of Smolensk he transferred the command of his retreating, but not dispirited army, to Kutnssoff, yielding to the desire of the nation, to be commanded by a native Russian. It is not ascertained whether he ordered the burning of Moscow, but at any rate he approved the act. He refused all accommodation with Napoleon, answering, that he had only begun the campaign, and would not treat while a foot of his dominions was occupied by the enemy. The retreat of the French, the terrible crossing of the Berezina, and the final annihilation of the invaders, are well known, and need no description here. The Russian forces now overran the dukedom of Warsaw, which had been created by the treaty of Tilsit, and whose free institutions had caused much uneasiness in Russia; soon afterward it was definitively incorporated with the empire. The advisers of Alexander—Kutusoff, Wolkonski, Araktsheff, Balashoff, insisted on arresting there the further pursuit of the French, and leaving the rest of Europe to its fate. But England urged the continuation of the war, Prussia asked for help, and Alexander, in his manifestoes from Warsaw, Feb. 23, and Kalish, March 25, 1813, appealed to the European nations as the redeemer of the continent. In Kalish, an offensive treaty against Napoleon was concluded between Russia, Prussia, and England, at the same time that the czar, animated with new impulses of religion, founded a Bible society, to spread the gospel

among all nations. He took part personally in various battles in Germany and France, where he arrived as the leader of the crusade against Napoleon. On Oct. 12, 1813, the treaty of Gulistan put an end to the war with Persia, and Russia acquired thereby a part of the Caucasus and of Armenia. Arrived at Paris, Alexander showed respect for the will of the French nation, by defending its integrity against others of the allies. He was not originally prepossessed in favor of the Bourbons, and would have preferred to see Napoleon superseded by anybody clearly pointed out by the will of France. In June, 1814, he visited London, was brilliantly received by the English, and won favor especially by standing up during the singing of Rule Britannia. In July of the same year he returned on a short visit to St. Petersburg. The senate proffered to him the title of "God-sent," which he refused. He returned to Vienna, where the destinies of Europe were to be settled, at the great congress of which he was the hero. There he gave to his newly conquered subjects, the Poles, a constitution, of which Carnot said that it was too good to be observed.—Napoleon's escape from Elba now shook Europe anew. On May 18, 1815, Alexander signed the proclamation, by which the great soldier was outlawed. Waterloo soon followed, and, for the second time, Alexander entered Paris victoriously, July 11, 1815. His religious excitement now increased, and with it, his indifference first, and then his hostility to liberty. In Paris, in 1815, under the inspirations of the celebrated Mde. Krüdener, he formed the holy alliance, which was to base the political order of the world on the principles of Christianity, or as it came to be understood, of despotism. Events having thus changed the face of Europe, Alexander took the lead in European affairs. In Russia, trade and industry revived, and efforts were made to expand the national resources. Alexander was inspired with the best intentions, but lacked the energy to carry them out. He began a partial abolition of serfdom, by emancipating those in the 8 Baltic provinces, but without allowing the peasantry the liberty of migrating from one province to another. In 1817 he virtually presided at the congress of Aix-la-Chapelle, and from that epoch might be dated the complete abandonment of his once cherished liberal and reformatory ideas. Exhausted bodily by various excesses, and mentally by the pressure of the terrible events in which, for more than 10 years, he had played a part requiring almost superhuman efforts, he collapsed. Afraid to see Europe again the prey of revolution, he became the leader of the reaction against all free tendencies. Metternich adroitly played upon his fears, and he almost wholly abandoned to his ministers the internal administration of Russia, while he devoted himself to suppressing liberal movements in Italy, Spain, Portugal, and Germany. At the congresses of Troppan, Laybach, Verona, he urgently sus-

tained this policy. The constitution of Poland had been violated in its principal parts. Irritation increased between the nation and the sovereign; conspiracies were formed in connection with the Carbonarism then existing in France and the south of Europe. At the same time new ideas were brought to Russia by the armies returning from the west, especially by those which had occupied France for several years. The political institutions and social state of other nations thus becoming better known, the desire arose and spread rapidly for changes more in harmony with the spirit of the age. Discontent was increased by the absence of administrative energy and integrity. The army was disorganized. In imitation of Austria, and with the view of surrounding St. Petersburg with an immense military force, military colonies of the peasantry were created by Araktsheeff, now the virtual ruler of the country. Suspicion spread in all directions. The censorship of the press, and of books imported from Europe, became exceedingly severe. Alexander became more and more the prey of hypochondria, gloomy, distrustful, inaccessible. The man who once received with a smile the memorials presented by his subjects, now ordered that any one who approached him in public should be arrested, and kept 24 hours in prison. Once an active freemason, he now suppressed the lodges throughout the whole empire. The secret police, whose operations embraced not only Russia, but all Europe, became more active than ever, the grand-duke Constantine, brother of the czar, being at its head. The Jesuits, who, even after their suppression in the 18th century all over the world, had been tolerated in Lithuania and Russia, were expelled, in 1821 and '22, for spreading Roman Catholicism among wealthy Russian families, and their establishment at St. Petersburg was handed over to their deadly foes, the Dominicans. Alexander estranged himself from many who had once been his friends, and with heartless cold blood and duplicity, crushed their worldly prospects and position. Only Wolkonski, a thorough absolutist, but otherwise noble-minded, and Araktsheeff, a despot by nature, remained unshaken in his favor. Araktsheeff, indeed, had been the favorite of his father, and hastened with a regiment to the rescue on the eventful night of his murder. Alexander retained him near his person during his whole reign, as if to atone for the bloody deed. The instinctive despotic sentiment more and more mastered Alexander's mind, and the celebrated Joseph de Maistre, the philosopher of absolutism, then residing at St. Petersburg, said of the czar after an interview, that despotism was breathed out of his nostrils. Alexander accused all his people, the Poles, and all Europe indeed, of ingratitude, not aware that his own inward antagonism and his breaking off with the inspirations of his youth were the sources that embittered and poisoned his existence. Downcast, broken, restless, he hated every spot in turn, quitting St. Peters-

burg and Russia, to visit foreign countries, and returning equally dissatisfied. Finally the outbreak in Greece fearfully increased the dissidence between the Czar and the nation. Its feeling and sympathies were with the insurgents. For more than half a century the whole influence of Russia had been employed to stir up the Greeks. Now, when the moment of action came, Alexander, under the advice of Metternich and Nesselrode, opposed the natural policy of Russia, abandoned the Greeks to their fate, and suffered one of their leaders, Ypsilanti, once his favorite aide-de-camp and confidant, to pine in Austrian dungeons. The marriage of the czar being childless, he had become fondly attached to a natural daughter by Mde. Naryshkine. The death of this girl, coupled with a fearful inundation at St. Petersburg in 1824, destroyed his mental equilibrium. These catastrophes he considered as the punishment of parricide. Ideas of death filled his mind; his health was shattered, as well as that of his wife, with whom of late he had lived on affectionate terms. In Sept. 1825, in compliance with the order of his physicians, he went with her on a journey to southern Russia. He left St. Petersburg filled with gloomy forebodings, and took an affectionate leave of his court. Arriving at Taganrog, he left the empress and continued his excursion into the Crimea. He was attacked by the Crimean fever, combined with erysipelas, returned to Taganrog, and died there Dec. 1, 1825. A few weeks before his death Count Witt, one of the chief military authorities of the military colonies in the south of Russia, disclosed to him the existence of a wide-spread conspiracy against the imperial family. He, however, was unmoved by the information, and his successor, Nicholas, had to fight his way to the throne. The chief monument to the memory of Alexander is a column of one piece of Finland granite, erected on the great square of St. Petersburg.

ALEXANDER II., NICHOLAEWITCH, emperor of Russia, born April 29, 1818. From the cradle he was the object of the most tender love of both his parents, and was brought up in cordial and intimate family relations. His education was exceedingly careful. His father, the Emperor Nicholas, directed it, and gave almost daily attention to its progress. Gen. Fredericks, and afterward Gen. Kavelin, were his immediate tutors. Contrary to the previous usage with Russian imperial princes, his uncle Alexander I. and his father were educated by foreigners; Alexander II. received instruction mainly from native Russians, among whom Zoukowsky, an eminent man of letters, filled the chief place. Without transcendent abilities, Alexander learned well every thing taught him. His judgment and perception were equally clear, and he seldom if ever showed in his childhood, or youth those outbreaks of violent, ungovernable passion which had always been one of the prominent characteristics of the Romanoffs.

This gentleness of character he inherited from his mother, a royal princess of Prussia. He was always kind and easy in intercourse with his playmates, not haughty, overbearing, or cold, and never making them feel the inferiority of their position. His imagination and his heart had always a romantic turn, and on the throne he has thus far exhibited firmness of purpose without harshness. Early in youth he showed a love of justice and forbearance, often trying to assuage the feelings which had been wounded by the asperity of his father. Before seeing foreign countries, according to the wish of Nicholas, he travelled all over Russia, learning thus to know and appreciate his own fatherland. When he approached manhood, the Prince de Lieven, formerly Russian ambassador in London, was made his tutor, principally to acquaint him with the diplomacy of Europe, its routine and etiquette, and to accompany him in his travels in England, Germany, and Italy. He never visited France, as his father cherished a vivid contempt for the king, Louis Philippe, and avoided any demonstration of intimacy. On April 28, 1841, he married Maria Alexandrowna, grand-duchess of Hesse-Darmstadt, born in 1824. It was wholly a love match, the young prince having made his own choice among a host of German princesses. From the age of 18, he was admitted by his father to study the difficult task of governing the empire, being present at all the sittings of various ministers with the emperor. When in 1846 the Emperor Nicholas resided for several months in Italy, he delegated to his son all his vast powers, a fact rarely if ever paralleled in history. Indeed, to the end of the father's life the relations of the two were most confidential and affectionate. In February, 1855, he mounted the throne at a most critical and ominous moment for Russia. His predecessor left the country engaged single-handed in a war against England, France, Turkey, and Sardinia, with Austria as a passive enemy, and without any active ally whatever. For nearly a year Alexander unflinchingly continued the strife. Sebastopol was taken in Sept. 1855, but the allies won nothing more, and the Russian resistance continued. During the ensuing winter, the neutral German powers, especially Prussia and Saxony, finding Louis Napoleon not averse to peace, mediated officiously. An armistice was concluded between the belligerents in March, 1856, a conference convoked at Paris, and a final treaty there on the 18th of that month, put an end to the war. Russia lost by it a small slice of land in Bessarabia, and her naval preponderance in the Black sea. The nation as well as the czar thus learned by costly experience to know all the deficiencies of the system which his predecessor had pushed to the utmost extreme.—Since the peace, Alexander has devoted himself to putting Russia on a more healthy footing. In this career his actions have hitherto exhibited a humane, broad, elastic, and truly liberal spirit. Everywhere,

he has relaxed the lines drawn to the utmost tension by his predecessor. Above all, he is emancipating the nation from the military routine which permeates every branch of the administration. He has reorganized the army, and freed the people for the space of 4 years from military recruitment. He has also dissolved the greater part of the military colonies, freed public instruction from military discipline; and instead of placing discharged officers as tutors and professors at the head of the educational establishments, he has appointed men fitted by special studies for these positions. The censorship has been considerably relaxed, foreign newspapers circulate freely, domestic journals enjoy a new liberty. Thus for the first time genuine publicity is introduced into Russia. He has prohibited espionage, and unflinchingly wars against official corruption, allowing it to be ferreted out and exposed. He advances young men in the different branches of the public service, superseding those whose only merit is long years of routine. He has given a new impulse to internal industry and trade, at the same time that he seeks to develop the national commercial marine, and to induce native merchants to extend their relations to foreign countries. He has annulled the impediments which prevented Russians from visiting foreign lands; and has granted a general amnesty for political offenders, Poles and Russians, recalling the exiled from Siberia, and allowing fugitives to return; he proposes to create better channels of internal communication, and is employing the whole energy of the government and nation in the work of covering his immense empire with nets of railroads. He is religious, and sincerely attached to the national church, but without fanaticism. For the sake of his Roman Catholic subjects, he has brought to a close the misunderstandings with the see of Rome, which had lasted for more than 20 years.

ALEXANDER, ALEXANDER HUMPHREYS, titular earl of Stirling, born in Birmingham, England, about 1788. His claim to the extinct earldom of Stirling is so intimately part and parcel of his personal history, that a sketch of the various circumstances connected with the setting up and legal defeat of that claim is necessary. James I. of England had a favorite project of colonizing the borders of the gulf of the St. Lawrence. Sir William Alexander of Menstrie, a Scottish poet and statesman, having warmly entered into this plan, was created Earl Stirling, with succession to heirs male only, and gifted by royal charter with a large territory, including Nova Scotia and a considerable part of Canada. To him and his heirs was assigned the hereditary vicereignty of this vast district, with almost regal powers, including the right to confer the new dignity of baronets of Nova Scotia, upon acceptable persons who had paid for and received a grant of 16,000 acres of land in the colony. The eldest son of this the first earl of Stirling became involved

in difficulties, and sold his American rights to a French colonist. By the treaty of 1682, these North American colonies were ceded to France. In 1718, by the treaty of Utrecht, they were restored to England, but on a new basis, as if they had not previously belonged to her,—at any rate, the Alexanders' claim had been sold long before. The earldom of Stirling became extinct. The general officer who, as Lord Stirling, fought on the side of the patriots during the American war of Independence, claimed this peerage as an undoubted member of the family, but, as he came by the female line, while the title descended only on the male, the house of lords did not acknowledge him as a Scottish peer. More than half a century later, another claim was set up, in the following manner: In 1824, Mr. Alexander Humphreys obtained the royal license to assume the surname of Alexander, on the ground that he had a maternal grandfather of that name, and because it had been the wish of his deceased mother. She, it was stated, was a great-great-grand-daughter of the Hon. John Alexander, fourth son of the last earl of Stirling. Mr. Humphreys (Alexander) proceeded to certify his descent from this first Alexander; then, through him, from the first earl of Stirling; and lastly, that all other nearer descendants of that family being extinct, he was sole heir to the honors and property of the original recipient of the earldom and charter. In compliance with the terms of that charter, he went through the form of being formally invested, in Edinburgh Castle, by a process (since changed) which allowed almost any unopposed claimant to be "served heir" to property or title. Mr. Humphreys (Alexander) represented a female descendant, while the earldom and estates were exclusively reserved for heirs-male. But Mr. T. O. Banks, a genealogist of some ability, who had officially taken this case in hand, produced a document, purporting to be a copy of another charter, granted by Charles I. in 1689, usually called letters-patent of Novodamus, in which the first charter was renewed with the addition that heirs-female as well as male were included in its privileges. Assuming the title of earl of Stirling, as heir-male of his mother (she died in 1814, and he called her countess of Stirling in her own right), Mr. Humphreys voted, as earl, at an election of Scottish representative peers, in 1825, and no less a personage than Sir Walter Scott conducted the proceedings and received the vote, as principal clerk of session. The peers were taken by surprise, and let the vote pass, but in 1880, at another election of Scottish peers, the earl of Rosebery protested against persons claiming dormant peerages, using the titles and exercising the privileges, before the house of lords had decided the claim to be good.—Mr. Humphreys' early career had been a checkered one. He was in France, in 1808, when Napoleon detained all the British; then in Paris, and was much straitened in circumstances during this pe-

riod. On his return, he had opened a school in Worcestershire, but poverty and distress seemed to dog his steps. As soon as he appeared as earl of Stirling, claiming from the crown a vast territory, which emigration was rapidly making more and more valuable, he was able to raise money on his pretensions, and actually had advances to the amount of £15,000 from professed money lenders. He also opened an office in London for the sale of lands in British North America, conferred a baronetcy and 16,000 acres of land in Canada on Mr. Banks, his agent, issued proclamations describing himself as "hereditary lieutenant and lord proprietor of the province of Nova Scotia;" and when the late earl of Durham was made viceroy of British North America, with unusually large powers, published a protest (which appeared in the French papers only) against the terms of the appointment, as infringing his own rights. In the English courts of law he was allowed the peers' usual exemption from personal arrest. The crown lawyers of Scotland at last challenged the authenticity of his claims. A trial ensued, in which Mr. Humphreys (Alexander) had to set forth his pedigree, and it was necessary to show that his reputed ancestor, the fourth son of the first earl of Stirling, who was known to have had only one child, a daughter, by his wife, the heiress of Gartmore, had married a second time, and had a son by such marriage. Exactly at the moment when the proof was required, a parcel for "the Rt. Hon. the earl of Stirling," was left at a bookseller's in London, which was found to contain an inner packet, in a parchment cover, sealed with three old-fashioned seals, and accompanied by a note stating it to have been found in a cash box, stolen many years before from the late William Humphreys, Esq., of Birmingham (father to the claimant), and restored by the descendants of the thief, who were willing to make reparation, but declined "to court disgrace and infamy" by giving their names. Among other papers in this packet, was a genealogical tree, showing the second marriage of John Alexander, of Gartmore, to Elizabeth Maxwell, of Londonderry, by whom he had a son, John "sixth earl of Stirling," grandfather of Humphreys' mother. While in France, the claimant had become acquainted with the celebrated Mdlle. Le Normand, the fortune-teller, who possessed considerable literary abilities, and had an extensive correspondence with authors and men of letters. She had advanced a large sum to Humphreys, to enable him to litigate his claims, and was over 70 years old when the trial came on. The Scottish court of sessions decided against him, and Mr. Humphreys, being on the continent, called upon Mdlle. Le Normand, who handed him a mysterious packet, which she said had been dropped in her rooms by two ladies of rank. It contained a letter signed "M.," dated from Versailles, declaring the writer's lively interest in the Stirling case (which his official position did

not permit him publicly to express), and inclosing a large old French map of Canada, covered with important and remarkable documents, supplying the completion of the evidence required to prove the claim, more particularly confirming the copy of the charter of Novodamus of 1689 (the original of which was lost), and the authenticity, also, of a tombstone over the remains of the grandfather of Mrs. Humphreys, the claimant's mother. Thus strengthened, the claimant returned to Scotland, and having exhibited the Le Normand documents, was indicted by the crown on a charge of having forged them. The trial commenced April 29, 1839, and lasted 4 days. It soon became apparent, in an early part of the proceedings, that the documents were forged, and the only questions for the jury then were whether the prisoner had himself forged them, or used them knowing them to have been forged by others. The documents so mysteriously left with the London bookseller excited less attention, and indeed were less important than the contents of the packet dropped in Middle Le Normand's rooms, in a manner more mysterious still, and the charter of 1689, restoring the Canada estate to the Stirling family, and opening the succession to heirs through the female line. A map of Canada, made by De Lisle, the celebrated French geographer, and dated 1708, contained some things which could not have been there until much later—for example, De Lisle was there described as "first geographer to the king," a title he did not obtain until 1718. It was proved, by French witnesses, that the date 1708 was retained on the map to mark the commencement of the copyright, but that from certain territorial changes included in it, the actual publication must have been after 1717, several years subsequent to the death of Louis XIV., Fenelon, and Esprit Flechier, bishop of Nismes, whose signature appeared as attesting the authenticity of certain inscriptions on the back of the map, all strongly asserting the territorial rights of the earls of Stirling in Canada and Nova Scotia. The illustrious Fenelon and Bishop Flechier would appear, if those documents were true, to have compared and certified copies of the charter of 1689, without any particular reason for taking so much trouble. The French antiquaries, skilled in old writings, who were examined, declared these documents were imitations, but the fact that the map could not have been printed until the parties writing on it had been some years dead, left the matter on a surer basis than suspicion or the opinion of an "expert." The charter of Novodamus, said to have been granted in 1689, was not to be found in the usual public register of Scotland, for a portion of that record, including the year 1689, had been lost. It was just, therefore, that the claimant should establish its substance from other sources. But a Scottish charter, previous to its being recorded in the register, would have to pass through several offices, and these records, existing in

full, contain no reference to it. Further, though the register for 1689 was lost, there remained an index of its contents, in which this charter was not mentioned. Besides, the blank in the lost records was too brief to contain a document of such length. Lastly, Archbishop Spotswood, one of the alleged witnesses of the charter, was dead before its date. Mr. Humphreys was attended all through the trial by Col. d'Aguilar, a gallant soldier and accomplished man of letters, who had been his classmate at school, and, with several other witnesses, bore the strongest testimony to his character. The verdict declared that the various documents were forged, and a majority of the jury found that the charge of having forged them, or used them with a knowledge that they were forged, was "not proven." This destroyed all legal pretensions on the part of Mr. Humphreys, and he was not heard of for several years, until he appeared at Washington; and it was reported in 1853, that President Pierce's administration were disposed to treat with him for the purchase of his "claim" on Canada and Nova Scotia. If such an intention ever existed, it has not been carried out. On a review of the whole case we may suppose that Mr. Humphreys had full belief in his own claims; that the Novodamus charter was got up by Banks, his agent, and the French documents by Le Normand (both of whom had large pecuniary interests in the result), while the mysterious packet from the London publishers, probably emanated from a third party whose interests were yet more deeply involved. There is nothing to show that the claimant acted otherwise than in good faith, fully persuaded that his pretensions were of the strongest kind, and supported by the most authentic evidence. The reports of the trial of 1839 (by Mr. Swinton and Mr. Turnbull) contain fac-simile engravings of the various documents, and are highly interesting. The case was also included by the late Mr. Townsend, in his "Modern State Trials," and was entered into at considerable length and with much ingenuity and legal acumen, by Mr. Samuel Warren, in "Blackwood's Magazine." The documents on which Mr. Humphreys Alexander rested his claims were impounded by the court of session, in Scotland, during the trial in 1839, and have not been restored to the claimant.

ALEXANDER, ARCHIBALD, D. D., an eminent Presbyterian divine, was born in Augusta county, now Rockbridge, Va., April 17, 1772, died at Princeton, N. J., Oct. 22, 1851. His grandfather, Archibald Alexander, was of Scotch descent, though an emigrant from Ireland, whence he came to Pennsylvania in the year 1786, and, after a residence there of about 2 years, removed to Virginia. He was one of the first settlers of that region, a man of mental vigor, personal courage, and respectable literary acquirements, as may be inferred from the fact that he raised a company of rangers for service on the Kanawha, and was accustomed to give lessons, in various departments

of science, to the young people of the neighborhood. His son William, the father of the subject of this sketch, was a farmer and trader. The first teacher whose instructions were enjoyed by Archibald was John Reardon, a convict whom his father had purchased—a practice common in that day—at Baltimore. This man claimed to be an Irishman, but was brought up in London, whence he was transported for crime, and, being intelligent, had turned his opportunities to such good account that he had acquired a respectable acquaintance with the Latin and Greek classics. A log school-house was built for him near the residence of Mr. Alexander, which he occupied until his enlistment in a corps which was raised for service against the British troops. He was wounded in a skirmish with Tarleton's men, in North Carolina, and was left for dead upon the field. He eventually recovered, however, and resumed his station as teacher. At the age of 10 years, Archibald was sent to the academy of the Rev. William Graham, at Timber Ridge meeting-house, where he commenced the study of the classics under the supervision of the accomplished principal and his no less eminent usher, James Priestly. Within a year after his entrance, Mr. Graham began to neglect his school, and devoted most of his attention to his farm, leaving the instruction of his pupils almost entirely to his assistant, who proved to be not only competent but faithful. His distinguished pupil has left on record a deserved tribute of respect for the memory of the man from whom—to use his own words—he “derived the first impulse in his literary course.” Priestly's erratic career and eccentricities are well known, and, though a man of extraordinary learning and enthusiastic ardor in behalf of education, he was deficient in the executive ability which is necessary to insure success in establishing and maintaining such institutions of learning as were then needed. His failure in organizing the Cumberland college at Nashville, to the charge of which he was called, is an instance in point. At the age of 17 years, and while reviewing his studies for the purpose of taking a degree at the academy, Archibald was placed by his father as tutor in the family of Gen. John Posey, of the Wilderness, twelve miles west of Fredericksburg. Gen. Posey had been colonel in Morgan's riflemen, and being a man of high social position and possessing ample means, could doubtless secure to the young tutor many advantages which he had not previously enjoyed. During his residence in this family, Archibald did not neglect his opportunities for improvement; and, while instructing the general's daughter and sons in Latin, he was diligent in prosecuting his own studies. He remained there but one year, and in 1789 he returned home and resumed his studies with his former preceptor, Rev. Mr. Graham, under whose instructions he mastered the difficulties of Euclid and Horace. At this time his mind became influenced by the remarkable religious

movement then in progress throughout all that part of the country, and which is yet spoken of as “the great revival,” and he began to turn his attention to the study of divinity. At the instance of Gen. Andrew Moore, he proposed to enter the college of New Jersey, at Princeton, but the opposition of Mr. Graham decided the question, and he was induced to remain at home and study theology under the supervision of his old preceptor. He was licensed at Winchester, Oct. 1, 1791, and spent some years in itinerant missionary service in different parts of his native state. To the peculiar training experienced in the performance of that duty he ascribed his remarkable fluency as an extemporaneous preacher, as well as the tenacity of his memory. His sermons were “closely studied, though not written.” In 1794, while executing a mission from the synod of Virginia, he had the good fortune to hear Patrick Henry defend three men charged with murder, and, at a later period, he was present when the same great orator made his last speech in public. His testimony corroborates the many eulogies extant of the remarkable and effective eloquence of Mr. Henry. In 1789, Dr. John Blair Smith resigned the presidency of Hampden Sidney college, and, after endeavoring, for a long time, to induce Mr. Graham to accept the position, the trustees elected Mr. Alexander as the successor of Dr. Smith. He complied with their request, but, in 1801, resigned the office of president, and also his pastoral charge, and made a journey to New York and New England. While on his way to the north, he visited the Rev. Dr. Waddell, the celebrated “blind preacher,” mentioned by Mr. Wirt in the “British Spy,” and contracted a matrimonial engagement with his daughter, Janetta, whom he married on his return in 1802. During his visit to the north and east, he made the acquaintance of many of the most distinguished scholars of the day, and was present at the commencement of Dartmouth college, when Daniel Webster made his graduation speech. In 1802 he resumed his former position at Hampden Sidney college, but owing to the insubordination among the students, he “became weary of governing them,” and accepted a call from the Pine street church in Philadelphia, where he was installed pastor on the 30th May, 1807. The degree of D. D. was conferred upon him by the college of New Jersey in 1810, and in the same year he was elected president of Union college in Georgia, a fact which remained unknown even by his family until after his death, when it was revealed upon the examination of his private papers. The theological seminary at Princeton was established by the general assembly of the Presbyterian church in 1811, and Dr. Alexander was, by common consent, elected as its first professor, having in his sole charge the various branches of theological education. He removed to Princeton in July, 1812, and entered upon

the discharge of the manifold duties of his office, from which he was, however, gradually relieved by the appointment of other professors as the demands and resources of the institution increased. The department of pastoral and polemic theology was, finally, assigned as his special charge, and to it he devoted his attention until his death. Few writers whose works are so voluminous have begun to publish at so late a period in life; for, with the exception of a few occasional sermons and some contributions to the Virginia "Religious Magazine," he gave nothing to the public through the press, until his 52d year, when his "Outlines of the Evidences of Christianity" appeared, a work which has passed through numerous editions, in various languages, and is a standard text book in several colleges. In 1826 his "Treatise on the Canon of the Old and New Testament" was published, and in 1829 he became a regular contributor to the "Biblical Repertory," a quarterly publication which was established at Princeton in 1825, by Professor Hodge, under whose auspices it still exists as the "Princeton Review." In 1833 he published a "History of the Patriarchs," and in 1839 contributed to a religious journal a series of "Essays on Religious Experience," which appeared in a volume in 1840, and, having been adopted by the Presbyterian board of publication, was issued in a German translation in 1853. His "History of African Colonization," an octavo of 608 pages, appeared in 1846, a "History of the Log College," at nearly the same time, and a "History of the Israelitish Nation," from their origin to their dispersion at the destruction of Jerusalem by the Romans, in 1852. His work on "Moral Science," though completed during his life, was not published until after his decease, and among his unfinished works is one on "The Duties and Consolations of the Christian;" one on "Patriarchal Theology;" a memoir of his old instructor, Mr. Graham; a history of the Presbyterian church in Virginia; biographical sketches of distinguished American clergymen and alumni of the college of New Jersey, and a work on "Church Polity and Discipline," his labors upon which were abruptly broken off by his last illness, and which ends with an unfinished sentence. Among his literary remains are a large number of manuscripts upon various subjects, some of which will probably be published at a future day.

ALEXANDER OF HALES, a famous English theologian, in the 13th century, who died in 1245. A great part of his life was passed at Paris, where he pursued his studies, and gave instruction in philosophy and theology. Bonaventura and Duns Scotus were his pupils, and perhaps Aquinas. His chief work was his *Summa*, which after being examined and approved by a commission of seventy doctors, was accepted as a complete manual of instruction in theology for all institutions of learning in Christendom.

ALEXANDER, JAMES WADDELL, D. D., eldest son of Dr. Archibald Alexander, was born in Louisa county, Va., in 1804, graduated at the college of New Jersey in 1820, and was appointed a tutor in that institution in 1824. He resigned that station in the following year, and was settled as pastor of a congregation in Charlotte county, Va., where he remained about 2 years, when, in 1828, he accepted a call to Trenton, N. J. In 1830 he resigned that charge and became editor of the Presbyterian, a religious newspaper published in Philadelphia, whence he was called, in 1833, to the professorship of rhetoric and belles-lettres in the college of New Jersey. He discharged the duties of this office with marked ability, until 1844, when he accepted the pastoral charge of the Duane street church in the city of New York. In 1849 he was appointed professor of ecclesiastical history and church government in the theological seminary at Princeton, where he remained until 1851, when he was elected pastor of the Fifth avenue church in the city of New York, which station he now occupies. The degree of D. D. was conferred upon him by La Fayette college, Pa., in 1843, and again, in 1854, by Harvard university.—His published works are numerous and popular. Among them is a volume of sermons, entitled "Consolation, in discourses on Select Topics, addressed to the suffering people of God;" "Thoughts on Family Worship, and plain words to a Young Communicant;" a series of essays entitled "The American Mechanic and Workingman;" a biography of his father, Dr. Archibald Alexander; numerous contributions to the Biblical Repertory and Princeton Review, some of the publications of the American Tract Society, and several essays first published in the Newark "Daily Advertiser" and the "Literary World," over the signature of "Cassariensis." His writings are characterized more by precision of language, exact scholarship, and literary elegance, than by the profound erudition which is so conspicuous in the works of his father and brother.

ALEXANDER, JOSEPH ADDISON, D. D., third son of Dr. Archibald Alexander, was born in Philadelphia in 1809, and received his early education at the college of New Jersey, where he graduated in 1826, at which time he had already acquired a considerable knowledge of the Hebrew language, and of oriental literature in general. After leaving college, he continued his studies in private, and in 1830 was appointed adjunct professor of ancient languages and literature in his alma mater, which office he resigned in 1833. He remained at his paternal home in Princeton, being assisted in his studies by the eminent scholars who filled the professors' chairs in the theological seminary, though he never became a matriculated student in that institution. He was soon appointed by the board of directors as an assistant teacher in the department of Dr. Hodge, and, in 1838, he was elected by the general assembly

of the Presbyterian church as professor of Biblical criticism and ecclesiastical history. In 1852 he was transferred to the chair of Biblical and ecclesiastical history, which he still occupies. He received the degree of D. D. from Marshall college, Pa.—His literary labors, which give evidence of profound learning and great industry, are not so diversified in their character as those of his father or his elder brother, but are chiefly exegetical. He has published a "Translation and Commentary on the Psalms," in 3 volumes; "A Critical Commentary on the Prophecies of Isaiah," and an abridgment of the same work; a volume on primitive church government, and numerous essays in the "Biblical Repertory" and "Princeton Review." He is now engaged, in connection with Dr. Hodge, in preparing a commentary on the New Testament, a large portion of which is already completed, and a part of which is passing through the press. He has always retained the secluded habits of a retired student, and has never had a pastoral charge.

ALEXANDER, NATHANIEL, Dr., governor of North Carolina in 1806, died March 8, 1808, aged 52. After graduating at Princeton in 1776, he studied medicine. During the war of the revolution he served in the American army, resuming the practice of his calling on the return of peace.

ALEXANDER, NOEL, a writer of church history, born at Rouen in 1639, and died in 1724. He became a Dominican friar, after completing his studies, and held the office of professor of philosophy in the great convent of Paris for twelve years. M. Colbert esteemed him highly, and availed himself of his talents in the education of his son, afterward archbishop of Rouen.

ALEXANDER, STEPHEN, LL. D., an American astronomer, was born at Sohenectady, N. Y., Sept. 1, 1806, graduated at Union college in 1824, and was matriculated in the theological seminary at Princeton in 1833. In the following year he was appointed tutor in the college of New Jersey, and, in 1834, was elected adjunct professor of mathematics in the same institution, which station he occupied until 1840, when the professorship of astronomy was created and assigned to him. Upon the decease of Professor Dod in 1845, Mr. Alexander succeeded him in the chair of mathematics, which he exchanged in 1854 for the professorship of mechanics and astronomy, which he yet retains. His diploma from the American philosophical society is dated in 1839, that from the American academy of arts and sciences (Boston) in 1850, and, in 1852, the degree of LL. D. was conferred upon him by Columbia college.—He has written many scientific papers, which have excited considerable interest, and several of them have been translated and published in Europe. Among those which have attracted most attention, is one on the "Physical Phenomena attendant upon Solar Eclipses," which was read before the American philosophical

society at their centenary meeting in 1843, and an abstract of which was published in their "Proceedings," one "on the Fundamental Principles of Mathematics," read before the American association for the advancement of science in 1849, and published in the American "Journal of Science" in 1849; one "on the Origin of the Forms and the Present Condition of some of the Clusters of Stars, and several of the Nebulae," read at the meeting of the American association, at Albany, in 1850, and since published in the Astronomical Journal; several communications to the same association "relative to the Form and Equatorial Diameter of the Asteroid Planet," and also on the "Harmonies in the arrangement of the Solar System, which seem to be confirmatory of the Nebular Hypothesis of Laplace."

ALEXANDER, WILLIAM, earl of Stirling, secretary of state in Scotland in 1626, and author of several poems and dramatic pieces, died in 1640. He resided for some years at the court of James VI., where, among other works, he published "Monarchic Tragedies," dedicated to that prince, and a poem entitled "Doomsday, or the Great Day of Judgment." He was at one time gentleman usher to Prince Charles, and master of the requests.

ALEXANDER, WILLIAM, a major-general in the American revolutionary army, was born in New York in 1726, died Jan. 15, 1788. Claiming the earldom of Stirling, in Scotland, to which many of his contemporaries believed him to be entitled, he is known to history only as Lord Stirling. Having received an excellent education, more particularly in the department of mathematics, and having enjoyed the opportunity of bringing his talents and acquirements into notice, he attained a high reputation as a man of science. During the French and Indian war he was a member of the military family of Gen. Shirley, having, at different times, acted as commissary, aide-de-camp, and secretary. After the close of the war he went to England, where he spent a large portion of his fortune in the unsuccessful prosecution of his claims to the title and estates of Stirling. On the breaking out of the war of the revolution, he was appointed colonel of a regiment, and, while stationed at New York, previous to the arrival of Washington from Boston, he fitted out an expedition consisting of a pilot boat and some smaller boats, with which he put to sea at night, eluding the vigilance of the sentinels of the British frigate Asia, which then lay in the harbor, and captured a transport laden with stores for the enemy at Boston. He opened the battle of Long Island, where, though he fought with determined, even obstinate bravery, he was compelled to surrender, after having secured the retreat of a large portion of his command. Having been exchanged, he fought with Washington at Brandywine, commanded the reserve at Germantown, and led a division at Monmouth. He died from an attack of gout. The

name of Lord Stirling will always occupy an honorable place in American history, not only for his unquestioned patriotism and personal courage, but also for the part he took in exposing and defeating the designs of the "Conway cabal."

ALEXANDRE, A., a famous writer on chess, born in Germany, about 1778, died in Paris in 1850. He published in Paris, in 1837, an "Encyclopædia of Chess," and in 1846, a "Collection of the finest Problems of Chess," works which gained for him a high reputation among the lovers of chess throughout Europe. At the age of 70 years, being still enthusiastic in the theory and practice of his profession, he undertook at once a triumphal and missionary tour through Germany and the East, striving to give his own enthusiasm to the disciples of chess, and to raise chess-playing to his own conceptions of high art.

ALEXANDRIA. I. A county in N. E. Virginia, lying on the Potomac, opposite the city of Washington. The area of the county is about 86 square miles, its surface is hilly, and its soil poor and thin. At Alexandria, the capital of the county, the Orange and Alexandria railroad terminates, and a canal connects that city with Georgetown, D. C. This county, once a part of the District of Columbia, was ceded to Virginia by act of congress, July 9, 1844. The products in 1850 were 28,380 bushels of Indian corn, 6,238 of wheat, 6,312 of oats, and 912 tons of hay. It contained 12 churches, and published 3 newspapers. There were 619 pupils attending public schools. In 1850, its real estate was assessed at \$2,349,541, and in 1856 at \$4,068,809, showing an increase of 77 per cent. Pop. free white, 7,217; free colored, 1,409; slave, 1,382; total, 10,008. II. A port of entry, and capital of the above county. It is situated on the right bank of the Potomac, 7 miles below Washington, in lat. 38° 49' N. long. 77° 4' W. The Potomac is here a mile in width, forming a harbor able to accommodate the largest ships. The site of the city is undulating, affording a good view of the capitol at Washington, and the river Potomac. Alexandria contains a court house, 3 banks, 2 newspapers, 12 churches, and several good schools. It is generally well paved, and lighted with gas, and water has recently been introduced by machinery. The port owns a considerable amount of shipping, in which corn, tobacco, and coal, are exported. The city is connected by a railroad 90 miles long, with the central railroad of Virginia; it also enjoys water communication by canal with Georgetown, where it intersects the Chesapeake and Ohio canal. Since the completion of these improvements in 1852, the business of Alexandria has considerably increased. In 1854 the shipping of the port was 3,771 tons registered, and 8,644 enrolled and licensed. Of the latter, 7,629 tons were employed in coasting, and 1,560 in steam navigation. The foreign trade of the same years consisted of 118 arrivals, and clearances representing an aggregate of

38,451 tons. Shipbuilding is carried on here to a limited extent, and the cotton manufacture, which has been recently introduced, is in successful operation in a number of factories. Population, 8,752.

ALEXANDRIA, a city of Egypt, at the mouth of the Nile. It was one of the greatest cities of antiquity, little, if at all, inferior to imperial Rome, either in size, magnificence, or population. After the destruction of Tyre by Alexander the Great, that conqueror saw the greatness which might be attained by a city at the mouth of the Nile, and founded Alexandria, B. C. 332. Dinocrates or Dinochar was the architect, and the site selected was at the Canopic mouth of the river, between the sea and Lake Mareotis. The city was intersected by streets from north to south and east to west. On the island of Pharos a light-house of vast height was erected by Sostratus of Onidus, and this island itself was connected with the mainland by a dyke which divided the inner from the outer harbor, and through which vessels could pass by means of movable bridges. The court end of the town was called the Bruchion, and here the royal palace of the Ptolemies was situated, who possessed themselves of the kingdom of Egypt after the death of Alexander.—The port of Alexandria was the great centre to which the trade of Europe and the Mediterranean, with Persia and the far East, opened up by the Macedonian conquests converged. The population of Alexandria numbered, according to the registers, no less than 300,000 free men, to which must be added the female and juvenile members of families, and the vast numbers of slaves which swelled the numerical strength of ancient cities. Alexandria speedily became a great seat of learning. The recondite knowledge of the Egyptian philosophers, among whom physics and the mysteries of nature had from unknown ages been the object of research, was qualified by the brilliant wit and lively imagination of the Greek; while the theocratic Jew, the disciple of Zoroaster, the worshippers of Buddha and Brama, brought their creeds and their philosophy to this intellectual arena. Here the schools of Grecian philosophy, and especially the Platonists, flourished. In Alexandria the Scriptures were first made known to the heathen by the Septuagint version, and here Christianity early took root and grew with great luxuriance, although Alexandria soon became the head-quarters of sectarianism, and the scene of rancorous and unchristian disputation and violence.—Julius Cæsar laid siege to Alexandria and took it 48 B. C., at which time much damage was done to the city. In 80 B. C. it fell permanently under the power of the Romans; and notwithstanding the removal of many of the most precious works of art to Rome, its greatness continued until the establishment of the seat of empire at Constantinople. It suffered the wholesale butcheries of Caracalla, a sack by Aurelian, and another by Diocletian. The great temple of Serapis was destroyed by Theo-

philus the patriarch, who left not a vestige of the magnificent structure. From the rise of Constantinople, though still a centre of commerce, for which its position gave remarkable facilities, Alexandria as a capital began seriously to decline. In A. D. 640 it was taken by the Saracens under Omar, and in 969 Cairo was founded by the caliphs of the Fatimite dynasty, and made the capital of Egypt. In 1497 the discovery of the cape route to India and the East by the Cape of Good Hope completed its decay. At present the ancient city is a mass of ruins, in which the traveller walks through masses of rubbish, broken column, sand capitals, potsherds, loose bricks, and stones. The underground cisterns for the preservation of the Nile water are the only perfect relics of the past. The great monolith, known as Pompey's pillar, although in reality it does not belong to his memory, and Cleopatra's needles, are conspicuous memorials; one of these, a solid shaft of 60 feet high, was presented by the pasha of Egypt to the British museum. But its vast weight, 279 tons, has hitherto been by engineers considered as an obstacle to its removal.—Modern Alexandria is situated on the causeway which once formed the communication between the mainland and the Pharos, and which by constant accumulation of sand and material is now formed into a neck of land. There are two ports, one at the extremity of an extensive roadstead on the west of Pharos, in which vessels of the line may lie. The other the modern port on the east of the Pharos, is less advantageous. The lake Mareotis was dried up by accumulations of sand, but in 1801 the British army cut through the narrow strip which separates it from the lake of Aboukir, and let in the sea again. The town is principally built of the ruins of ancient Alexandria. The streets are narrow and dirty, and the whole place is exceedingly unprepossessing. Under the vigorous rule of Mehemet Ali its commerce revived, and the restoration of the overland route to India, of which Alexandria is one of the chief stations, has again drawn to it a great amount of traffic. In 1820 a canal was opened connecting Alexandria with Cairo, and on the sea-side the place is fortified. Mehemet Ali built a new palace, a custom-house, and a marine arsenal; and the Mahmoudy canal connecting Alexandria with Rosetta was reopened in its ancient channel by Mehemet Ali in 1820. The present population is about 60,000 of all nations.

ALEXANDRIAN CODEX, an uncial manuscript of the Old and New Testament, so named from the fact that it was found at Alexandria by Cyrillus Lucaris, the patriarch of Constantinople, who presented it (1628) to Charles I. of England. It was written on vellum, in double columns, condensed and unaccented. It is supposed, by notes attached to the codex, to have been written by the martyr Thecla, just after the council of Nice. However this may be, it contains internal evidence of Egyptian origin. It contains beside

the canonical books, most of the apocrypha, the canonical books being slightly varied in their order. Some writers have been of the opinion that the writer of this codex followed 8 different editions, the Byzantine in the gospels, the western in the Acts and Catholic epistles, and the Alexandrine in the epistles of Paul, and, therefore, speak disparagingly of its authority. Others consider it the most perfect copy of the Scriptures extant. It is considered by all a very important document. The famous passage concerning the 8 witnesses (1 John v. 7) is not contained in this codex. Beside this, there are several chasms in the text, more especially in the New Testament. A portion of the Gospel of St. Matthew and of St. John, as well as of the Second Epistle to the Corinthians, is wanting. On the first page of the text of Genesis is a declaration that the MS. was dedicated to the use of the patriarch of Alexandria, and an anathema of excommunication against him who shall remove it from the library. Cyrillus, the donor of the MS. to Charles, was a patriarch of Alexandria, before his removal to Constantinople. By some he has been accused of forgery in this whole matter. The MS. is in very good condition generally. It is the only known MS. which contains the genuine epistle of Clement to the Corinthians. This codex is now preserved in the British museum.

ALEXANDRIAN LIBRARY, a collection of books, which according to some authorities was begun by Ptolemy Soter, in the city of Alexandria, B. C. 290, and according to others by his son, Ptolemy Philadelphus, under the persuasion of Demetrius Phalerius. Josephus has a story about the matter in which he represents Demetrius as saying to Ptolemy Soter, that the library already numbered 200,000 volumes, and that it would soon amount to 500,000. It seems to be more certain that in the time of Ptolemy Philadelphus, a library was founded in the temple of Jupiter Serapis, of about 100,000 volumes, and that Philadelphus was the original founder of that library called Alexandrian by way of eminence. This makes the first portion of the library, usually called Bruchion, fabulous. However this may be, Philadelphus certainly made very energetic efforts, and not always scrupulous ones, to get books. It is related that he seized all books brought into Egypt, and caused them to be transcribed, returning the copies to the owners, and reserving the originals for the library, and that he refused food to the Athenians in a famine except on condition that they would give him copies of the tragedies of Sophocles, Æschylus, and Euripides, though he remunerated them with 15 talents. Other books he purchased both at Athens and Rome, and throughout the east. Ptolemy Euergetes, his successor, pursued the plans and course of Philadelphus. It appears that in Cæsar's Alexandrian war (B. C. 47) some public library in Alexandria was burned. It is usually considered to have been the Bruchion,

near the palace, but if that is fabulous, then either the story of the burning is so too, or else it was the Serapian collection which was burned. If so, then there could not have been a very great collection in the Serapeion in the time of Bishop Theophilus, who is said either to have destroyed or pillaged that collection about A. D. 400. At any rate, if Theophilus burned it, then from that time till the destruction of the Alexandrian library, by the order of the caliph Omar (A. D. 642), the collection made could have been of little extent, and less value, and even if Theophilus did not burn the Serapian collection in his time, but only pillaged it, and the contents were finally returned, even then the destruction of the caliph is of much less account than is commonly considered. Gibbon indeed urges that Abulfaragius, who gives the account of the destruction by the caliph, is not to be believed for lack of corroborative evidence from those whom he claims to have been better qualified by birth and circumstances to have known the facts in the case, and who are totally silent concerning any such destruction. Abulfaragius was a native of Melitene, on the banks of the Euphrates, and spent most of his life in Syria, and wrote about A. D. 1250. Eutychius and Elmacin, on the contrary, were natives of Egypt, and Eutychius wrote more than 800 years earlier than Abulfaragius. The general opinion of critics and historians, however, gives credence to Abulfaragius. He says that Amrou, the captain of the caliph's army, would fain have preserved the library, but that the caliph replied, "If these Grecian books agree with the Koran, they are useless, if not they should be destroyed," and so the order was obeyed. The manuscripts, Abulfaragius says, were parcelled out to the 4,000 baths in Alexandria, and were there burned, the process occupying more than 6 months. This part of the story throws an air of incredibility over the whole. For plainly, if the story of the burning has any truth in it, the only collection to be destroyed was the Serapian, and that at the largest estimate, even with the addition of the Pergamean manuscripts (2,000) by Mark Antony (and concerning this there is a doubt, for Volateranus says they were burned at the taking of Pergamos, and Strabo says they were at Pergamos in his time during the reign of Tiberius), could not have exceeded 700,000 volumes, and this would give less than 200 manuscripts to a bath. There were, beside the Alexandrian library, at least 2 other libraries in that city, one in the temple of Augustus, and one in the Alexandrian school.

ALEXANDRIAN SCHOOL. This is a term used with no little vagueness, as applied to a certain type of human culture, or rather to a certain blending of several types of culture, which at length resulted in a kind of religious eclecticism, itself becoming in turn a most important element in the determination of Christian history. As such, the term will be used in this article, and not as signifying or in-

timating the existence of any specific organization for promulgating any determinate religious symbol, fully apprehended in the consciousness of its founders. For more than half a decade of centuries, Egypt had been preparing for the important part which the Alexandrian movement was to play in Christian history. Under Amasis (B. C. 560) permission was given to Greeks to settle in Egypt. Already, in the taking of Jerusalem by Nebuchadnezzar, a company of Jews under Johanan, had, by permission of the conqueror, gone into Egypt, and so had commenced that great mingling of the two most diverse forms of thought the world ever saw, Judaism and Platonism. The impulse given by the Greek Egyptian colonies, together with other motives of policy, determined Alexander to make Egypt the seat of his vast empire. From the moment of the founding of Alexandria, in the prosecution of his purpose, that city drew together a mixed population of Jews and Greeks, celebrated for learning and science. But the Grecian philosophy and language so entirely took the lead in the literary culture of Alexandria, that under Ptolemy Philadelphus, the Alexandrian Jews had exchanged their own tongue for the Greek. It was this very circumstance that led to their world-renowned translation of the Hebrew Scriptures into Greek, known as the Septuagint, 300 years before Christ. This was the signal for transplanting the Hebrew literature to Alexandria, and from this time, that form of religious thought and feeling which might aptly be characterized as Græco-Judaism, may be considered as having a distinct existence. The rationalism of the Platonic philosophy, and the supra-naturalism of the Jewish Scriptures, were brought into immediate contact, and exercised a powerful modifying influence upon each other. The founding of the Alexandrian library, and the various other appliances and means of human culture, both intensified the struggle which now commenced, and furnished the instruments of its prosecution. For a time it might have been uncertain how the struggle would terminate, whether in the domination of Judaism or Platonism in the resulting form of the Alexandrian Gnosis. But as before, so now, discipline had the advantage of zeal, and the introduction of the oriental mysticism as an ally of Grecian thought, turned the scale in favor of the philosopher, and brought out of this confused mingling of elements, by a sort of elective affinity, a religio-philosophical system, of which Platonism was the base, and in which Judaism was made to play but a subordinate part, by the neutralizing agency of Zoroaster. Thus was the Jew on one hand lifted to the plane of a decidedly higher rational thought, while there was enough of the Jewish element in the resulting compound to humble to a certain degree the haughty Greek, till he would consent to take counsel of his emotions as well as of his logic in framing the symbol of his faith. Thus had the mental movement of Alexandria

resulted at the opening of the Christian era. The Judaism of Palestine was unchanged. The early teachers of Christianity on the spot of its introduction had a very simple and direct task before them. It was to teach the religion of the Nazarene mostly as a historical fact, and in behalf of that fact, to appeal to the Jews from the point of view of a pure supernaturalism, and to the Roman Gentiles from the plane of Polytheistic conception. There was neither call nor opportunity for more. But when at length, in the extension of their labors, they came to Alexandria, it was not enough, as in other places, that they should proclaim Christianity as a dogma, or a fact. It must be in some manner related to the Alexandrian thought, translated into the philosophic tongue of that great seat of learning and civilization. Hence, the early teachers of Christianity at Alexandria naturally made it the direct effort of their instructions to show the harmony of the gospel with the great principles of this Græco-Jewish philosophy. To do this Aristotelianism was called into requisition. This was opposed to the mysticism of the East, while at the same time it had a certain affinity with the Platonic philosophy, in its hostility to the Pantheistic sentiment, from which the recognition of the *ὐλγ*, or blind force in Nature sufficiently distinguished Plato, though it left in his philosophy a savor of Dualism. Thus, making an ally of the Stagirite, the doctrines of the cross triumphed over those of Zoroaster and Plato, while at the same time they received an influence from this Alexandrian eclecticism, a bias towards the rationalistic and mystic conception of spiritual truth, which Alexandrian Christianity has sent down through the ages, to the present hour. This is what is meant by the Alexandrian school, rather than any determinate and verbally expressed symbol. No such symbol for a moment existed at Alexandria. There was too much freedom of individual thought to secure unity of faith in any imperfect announcement of Christian doctrine, and too little scope to that thought to attain unity of faith in a perfect one. Neo-Platonism, by which is meant that modification of Platonism which more perfectly adapted it to the Christian doctrine, is sometimes spoken of as completely developed in the ante-Christian movement described above. But it is rather to be regarded as a progressive evolution, out of the combined action of Platonism, Judaism, and mysticism before the Christian era, completed by the additional forces of Christianity and Aristotelianism, in the first and second centuries of the Christian era, and thus the result of 7 centuries of growth and conflict in human thought. That it was a vital movement in human history is evidenced from the fact that to this day, the type of the Alexandrian Christianity has come down distinct from that of Antioch, which was then taking form side by side with that of Egypt. The Alexandrian movement in its post-Christian period is illustrated with the names of Philo, Ammonias

Saccas, Plotinus, Porphyry, Iamblichus, Hierocles, Proclus, Pantænus, Clement, Origen, Athanasius, Gregory of Nazianzen, and Cyril. It is not, however, meant that all sustained the same relative position to the movement. Of these Philo represents the Judaistic extreme, while Clement is the great Christian Alexandrian, and one to whom, more than any other, the present symbol of the Protestant faith, so far as it is represented in the Alexandrian rather than the Antiochian branch, owes its development and preservation.

ALEXANDRINE, or **ALEXANDRIAN**, in poetry, a metre consisting of 12 or 12 and 18 syllables alternately; so called from a poem on the life of Alexander written in this kind of verse by a French poet of the 12th century. The French have ever since cultivated this species of verse more than any other European nation. Their tragedies are mostly composed of Alexandrines. In his Essay on Criticism, Pope gives the English opinion of them:

A needless Alexandrine ends the song,
That like a wounded snake drags its slow length along.

ALEXANDROV, or **ALEXANDROVSK**, a name given to various towns and places in Russia. The more interesting among them are: I. A small city in the government of Vladimeer, with a large ancient convent where Ivan IV. established the first printing office at the end of the 16th century, and where is now situated one of those institutions, which are scattered over Russia, for the education at public cost, and under the superintendence of the empress, of young girls of noble families, and especially of the orphans of civil and military officers. Here is also the central board of the imperial stud, for the improvement of the breed of horses. II. In Little Russia, government of Yakaterinoslav, on the Dnieper, beyond its cataracts. It is a commercial mart, whose trade extends from the interior of Russia to the Black sea. The produce of the country is brought by the river Samara to within a few miles of Alexandrov; thence it is carried on wheels to the city, where it is shipped on the Dnieper. III. A place near St. Petersburg, with an imperial porcelain manufactory. IV. A harbor in the channel of Tartary, south of the mouth of the Amoor, opposite to the island of Soghalien.

ALEXEI **MICHAËLOWITCH**, second czar of Russia, of the Romanoff lineage, born March 10, 1829, succeeded his father Michael Fedorowitch July 12, 1845, and died Jan. 29, 1876. During the earlier years of his reign he had for advisers his tutor, Morosoff, and the grand chancellor Plessoff. These were stormy years. An insurrection broke out against his counselors, and Plessoff was slain. Next appeared two pretenders to the crown; one calling himself Dimitri (he was the third pretender who had taken that name), the other a certain Ankudinoff, calling himself a son of the czar Basil Shuiski. Alexei put them down, and afterward proved himself one of the best sovereigns who ever occupied the Russian throne.

His reign marked the dawn of that civilization which his son, Peter the Great, more widely diffused over Russia. He encouraged learning, fostered printing establishments, attracted to Russia from abroad men of letters, artists, physicians, as well as manufacturers and operatives. He was active, intelligent, temperate, mild, just, and placable. To break the pride of the princes (*Knazes*) and boyards, who refused generally to obey the orders of a military or civil superior, when the date of his title was later than their own, Alexei ordered these rebels to deposit all the documents relating to their rank in the chancery of the imperial council, and then burnt them together with the old nobiliary record of the empire, called the Velvet Book. Under his reign Russia for the first time began to have the advantage over the Poles, whom he defeated in a war lasting from 1654 to '56. By the treaties of Moscow and Andrushoff, concluded with the Polish king, John Sobieski, Alexei recovered several provinces formerly taken from Russia. During his reign the Cossacks of the Dnieper and of the Ukraine, for centuries tributaries of Poland, seceded and submitted to Russia. He was twice married, and left children by both wives. The first was a Miloslawska, of a Russian boyard family, the second a Naryshkine, a person of lower rank, whom Alexei chose from the sight of her shoe, which made him think she had a very small and handsome foot. She was the mother of Peter the Great.

ALEXEI PETROWITZ, the eldest son of Peter the Great, and of Eudoxia Lapuchin, born in Moscow Feb. 18, 1690, died July 7, 1718. Surrounded from childhood by the relations of his mother, he was the centre of all those who were, like her, averse to the reforms introduced by his father. He affected a fanatic love of old Russian customs, manners, prejudices, and superstitions, and Peter decided to exclude him from the throne. Alexei, then about 22 years old, seemingly consented to this plan, saying it was his wish to become a monk. He entered a monastery, but still kept up his intercourse with the malcontents, and with his mother, who had likewise been shut up in a convent, and with her numerous dissatisfied relations. During the travels of Peter through various European countries in 1717, Alexei announced that he had received the order of his father to join him abroad. He thus managed to escape to Vienna, where he claimed the protection of the German emperor, and thence he went to Naples. Peter sent after the fugitive Rumeanzoff, captain of the guards, and Tolstoi, the privy counsellor, who, partly by coaxing, partly by menaces, succeeded in bringing him back to Petersburg. On Feb. 2, 1718, Peter disinherited Alexei, impeaching him and many of his kindred and advisers for high treason. Alexei was tried by the great council of the empire, to which, for the purposes of this trial, the bishops were added, who, however, refused to vote, and would not take part in a capital sen-

tence. While the trial was going on, Peter asked the court of Spain to give him a copy of the records of the proceedings against Don Carlos, son of Philip II. Alexei was found guilty by his judges and condemned to death. Peter pardoned him, but he died July 7, 1718, a few days after the condemnation; some say from fear and excitement, others that he was either poisoned or secretly beheaded by the order of his father. Peter himself published the proceedings of the trial. Alexei, when very young, was married to a princess, Wolfenbüttel, who died in 1715, leaving a daughter, and a son who reigned afterward as Peter II. The fate of Alexei has been dramatized by the German poets Gehe and Immermann.

ALEXIN, a circle of the province of Tula, in European Russia. It embraces one city, and 241 villages, containing about 90,000 inhabitants. The district is nearly level, well watered and wooded, and tolerably fertile. Its capital, on the river Oka, has a population of 2,000; it has 4 churches, and manufactories of hats and soap.

ALEXIS, or ALEXIUS I., COMNENUS, emperor of Constantinople, born in 1048, died Aug. 15, 1118. The family of the Comneni, which upheld for a while the fate of the sinking empire, had first become distinguished in the reign of the second Basil, when Manuel Comnenus contributed by war and treaty to appease the troubles of the east. Isaac Comnenus, one of his sons, was elevated to the throne, and bequeathed the sceptre to his brother John, who however refusing it, it passed out of the family. John Comnenus left 8 children, the third and most illustrious of whom was Alexis I., the restorer of the imperial greatness of his house. Alexis was endowed by nature with excellent talents, and had received a careful education under the direction of his mother. In his youth he had served the emperor Michael VII. in the Turkish war, from the perils of which he was recalled to render further service against the rebel Nicephorus Botaniates. He was one of the most faithful and persistent adherents of Michael, till he was deposed by his rebel enemy, when he offered his services to the new emperor. Nicephorus, who had appreciated his valor when an enemy, now received him with esteem and confidence, bestowed honors upon him, and charged him with restoring the peace of the empire then disturbed by many rebellions. Alexis triumphed over the most powerful leaders of revolt, Bryennius and Basilacius, and led them in chains to the foot of the throne. His victories, however, excited the jealousy of the emperor and the envy of the courtiers; and when he refused to march against a new rebel, the husband of his sister, the merit of his past services was forgotten, and his destruction was purposed. Forewarned in time, he escaped, by the protection of the empress, to the army, of which he was the favorite, and by which he was immediately proclaimed emperor. He marched in 1081 against Constantinople, which

he took, and gave up to the pillage of his soldiers; and Nicephorus was permitted to retire to a convent. Alexis found the empire in a condition which called for the exercise of all his talents, being not only in internal discomposure, but surrounded by enemies on every side. On the east the victorious Turks, overrunning the provinces of Asia, had spread from Persia to the Hellespont; on the west, the adventurous and valorous Normans, under their leader Robert Guiscard, after brilliant successes in Italy, were advancing eastward, ambitious of the purple; and new swarms of Scythians from the north having crossed the Danube and occupied Thrace, had several times defeated the imperial troops. The first measure of Alexis was to conclude a peace with the Turks by abandoning to them the provinces of which they already had possession. He had found his camp without soldiers, and his treasury without money, but heavy exactions and spoils of the churches furnished him the means to raise at once an army of 70,000 men, with which he marched for the deliverance of Durazzo, besieged by the Normans. His treaty with the sultan had procured him an auxiliary force of some thousand Turks, and he had even succeeded in enlisting under his banner some of the wild Scythians. The battle was fought Oct. 18, 1081; and the Normans, led on by the equal valor of Robert and his wife Gaita, gained a complete victory. Robert was now obliged by a revolt of his vassals to return for a time to Italy, and gave Alexis leisure to repel the increasing and dangerous incursions of the Turks. By means of his marine, he contended with doubtful success against them till 1095, but was in despair when he learned that the Turks had availed themselves of the art of some Greek prisoners to build a fleet, with which they were approaching Constantinople. In spite of his inventive genius, he found himself at the end of his resources, and he addressed himself for aid to the west, declaring that the existence of Christendom was threatened by this new irruption of barbarians. The capture of Jerusalem by the Mussulmans, the preaching of Peter the hermit, and the activity of Pope Urban II., produced a meeting of the Christian princes at Placentia. The ambassadors of Alexis were there present, and their recital contributed much toward deciding the princes to join the first crusade. Alexis had thought only of a moderate succor from the west; when therefore in 1096 the promiscuous armies of the crusaders began to arrive, numbering untold hosts, and led on by the most renowned leaders of Europe, his fears were quite as great as his hopes, and he was glad to give them a quick passage into Asia, where at first the Turks found little difficulty in annihilating them. Godfrey of Bouillon, and Hugh, count of Vermandois, encamped during the winter in the environs of Constantinople, and it was only by a skilful display of his military forces that the emperor felt his capital safe. He failed to

give them the assistance which he had promised, and in 1097 demanded from the chiefs of the crusade that they should restore to him his ancient possessions in Asia, and should do homage to him for all the territory which they conquered out of certain prescribed limits. They consented, though Bohemond, the son of the emperor's old enemy Robert Guiscard, long refused, and Tancred passed over into Asia to avoid the public ceremony of doing homage, at which count Robert of Paris insulted before the world the imperial majesty. These events make the theme of one of Walter Scott's novels. A good harmony never existed between Alexis and the leaders of the crusades, and though he rendered them important assistance in the siege of Nice, and though by their aid he recovered some important towns of Asia Minor, and the islands Rhodes and Chios, yet by faithlessly abandoning the Christians before Antioch, he so outraged Bohemond, that this prince returned to Europe, increased his army, and began to wage war in Thrace against Alexis. He, however, gained but slight successes, and soon made peace. In the last years of his life, Alexis continued to war against the Turks, and defeated them in great battles in 1115 and 1116. Alexis was an able ruler, valiant, active, and politic; but he proved himself also dissembling and hypocritical, when he could not otherwise attain his ends.—ALEXIS II., COMNENUS, emperor of Constantinople, born Sept. 10, 1167, died in 1183. He was third in descent from Alexius I., came to the throne under the guardianship of his mother Mary, and was unable to rule the ambitious and unscrupulous relatives by whom he was surrounded. Andronicus, the most conspicuous character in the history of this time, having put the empress Mary to death, soon after caused the death of Alexis, after a reign of 8 years and a few days.—ALEXIS III., ANGELUS, emperor of Constantinople, died in 1210. During the reign of the tyrant Andronicus, he had taken refuge with Saladin, and had returned to Constantinople only after the dethronement of Andronicus. Loaded with honors by the new emperor Isaac Angelus, he did not the less plot against him, and in 1195 managed to displace and succeed him. His reign was disgraced by the depredations made upon the empire, by Turks, barbarians, and his wife Euphrosyne. In 1208, Constantinople was approached by a formidable Venetian fleet, and captured; the emperor Isaac was restored, and Angelus passed the remainder of his life in a monastery.—ALEXIS IV., emperor of Constantinople, born in the second half of the 12th century, died Feb. 5, 1204, after a reign of a few months. He was the son of the emperor Isaac Angelus, and was hated by his subjects for the efforts which he made to extort from them the money which he had promised to the crusaders, and despised by the crusaders for having made them promises which he could not fulfil. A rebellion broke out, which was, however, crushed by Alexis Murzuphlus in the name of Alexis; he then caused

the unfortunate emperor to be cast into prison, where he was soon after strangled.—ALEXIS V., surnamed Murzuphlus, emperor of Constantinople, born in the second half of the 12th century, died in 1204. He had caused the dethronement and death of Alexis IV., and was immediately after obliged to flee from the throne himself. He fell into the hands of the French, who precipitated him from the top of a lofty column. Artful, avaricious, and cruel, he stripped all the great lords of their wealth, proving by the strictest law that it belonged to himself. He reigned but 8 months.

ALEXIS, or ALEXIUS I., COMNENUS, emperor of Trebizond, born about 1180, died in Feb. 1222. The relentless enmity of Isaac Angelus to the family of the Comneni, threatened the entire extermination of that illustrious house. The sons of the last Comnenian emperor of Constantinople, John and Manuel, were by his command mutilated and murdered in prison. The latter, however, left two infant sons, Alexis and David, who fled with their mother to their relative Tamar, the Georgian queen of Tedia, by whom they were received, protected, and educated. They gradually formed a dominion on the banks of the Phasis, which the distracted government of the Angeli failed to suppress. On the conquest of Constantinople by the Latins in 1204, they, Alexis and his brother, rallied around them numerous discontented Greeks, left their retreat, and passed the Phasis. Alexis captured Trebizond, Cerasus, Mesochaldion, and took possession of all that coast of the Black sea as far as Amisus, while David advanced beyond the Halys, took Sinope, and pushed his conquests even to the environs of Constantinople. Alexis now assumed the imperial title, proclaiming himself king and ruler of all Anatolia, but many of the Byzantine historians refused to mention him by this title, in order to flatter the Latin emperors. The reign of Alexis was troubled by perpetual wars with the Turks, and with Theodore Lascaris, who having, like Alexis, become master of a fragment of the empire, was entitled the emperor of Nice. In 1214, Alexis concluded a peace with the latter, but the same year fell into the hands of the sultan of Iconium, and purchased his liberty by yielding to the Turks the town and district of Sinope. His empire at his death was reduced to the coast of the Black sea, comprised between the Phasis on the east, and the Thermodon on the west.—ALEXIS II., COMNENUS, one of the line of Trebizond emperors, born in 1288, died in 1330. He succeeded his father John II. in 1297, under the wardship of Andronicus II., emperor of Constantinople. Andronicus desired him to marry a Greek lady, but Alexis preferred an Iberian princess, his marriage with whom put an end to the good harmony which had existed between the two Greek courts. Alexis had wars with the Turks, who in 1319 unsuccessfully besieged Cerasus and Sinope. He also had difficulties with the Genoese, who had possessed

establishments at Trebizond since the beginning of the 13th century. As their commerce with Constantinople was free from taxation, they demanded the same privilege from the emperor of Trebizond. The latter refused, and after a violent *melée*, during which a large number of the factories belonging to the Genoese were burned, they no longer insisted. Alexis received, in 1328, a letter from Pope John XXII., charging him to end the schism of the Greek church, to which he returned no answer.—ALEXIS III., COMNENUS, emperor of Trebizond, born in 1338, died in 1390. He was the son of the emperor Basileus II., succeeded Michael I. in 1349, and two years later married the princess Theodora, of the imperial house of the Cantacuzeni, at Constantinople. Alexis was, during 20 years, in war with the Turks, and at one time narrowly escaped falling into their hands in the snowy mountains of Chalybia. He at last concluded peace with them, by giving his daughters in marriage to their principal chiefs. Anne Comnenus, his second daughter, was married to Bagrat VI., king of Georgia, whence descend the present Russian princes of the house of Bagration. In 1380, Alexis had a difficulty with Megollo Lercari, a rich Genoese merchant. Megollo having received a blow from a favorite courtier, and having vainly asked reparation from the emperor, returned to Genoa, and armed two vessels, with which he ravaged the coast of Trebizond, captured the ships, and sent insults to the throne of Alexis. To obtain peace, the emperor was obliged to grant great commercial privileges to Megollo and his countrymen. Alexis was a lover of the arts of peace, rather than of war, and built, during his reign, a magnificent convent on Mount Athos.—ALEXIS IV., COMNENUS, emperor of Trebizond, succeeded Manuel III. in 1412, died in 1446. He purchased peace with the Turks by an annual tribute, and by giving in marriage to their chief a princess of his family. He contracted alliances with the most considerable families of Georgia, Constantinople, Lesbos, and Venice, and shared the throne during some time with his eldest son, Kalo-Johannes, who was afterward exiled for having killed his mother, suspected of crime. Kalo-Johannes escaped from exile, was joined by some malcontents, and succeeded in assassinating the emperor, and taking possession of the throne. It was during the reign of Alexis IV. that the Venetians began to displace the Genoese in the commerce of the east.—ALEXIS V., COMNENUS, nominal emperor of Trebizond, died about 1470. He was son of Kalo-Johannes, and but 4 years of age when he succeeded his father. He was dethroned by his uncle David, and after the fall of the empire of Trebizond, was carried to Constantinople, and put to death by order of the sultan Mohammed II.

ALFANI, the name of two Italian painters, Domenico di Paris, died about 1540, and Orazio di Paris, son of the former, died in 1588. The

pictures of the former have often been taken for those of Raphael.

ALFARABIUS, an Arabian philosopher of the 10th century. He travelled and settled at Damascus, where he was joyfully received by the Abbasside caliph, who settled a pension upon him. He led an extremely temperate life, approaching asceticism. His writings were very voluminous and comprehensive, and he is reputed to have been the first who attempted the compilation of an encyclopædia. There is a MS. of this character in the Escorial. He wrote on logic, and Avicenna acknowledges that he is indebted to his works for his learning. He also wrote on music.

ALFATAH, or **ALFATH IBN KHAKAN**, an Arabian historian, native of Seville, died at Morocco, 1134 or 1135. We know little of his life, except that he lived at the court of one of the Almoravid emirs, and was put to death by order of the sultan of Morocco. He composed a work in Arabic on the lives of distinguished Moslems, and especially of those who lived in Spain. The 1st part treats of kings and princes, the 2d of viziers, the 3d of cadis, theologians, and doctors, the 4th of poets and men of letters. Manuscripts of it are to be found in the principal libraries of Europe. Some extracts have been republished.

ALFENUS VARUS, **PUBLIUS**, a Roman lawyer, a native of Cremona, originally a cobbler, came to Rome and was a pupil of Servius Sulpitius. He worked himself up to the dignity of consul in 754 U. C., and composed 40 books of digests, fragments of which may be found in the *Pandects*.

ALFERGAN, or **ALFRAGAN**, an Arabian astronomer, who flourished in the reign of the caliph Almamoun, surnamed the Calculator. He was the author of an introduction to astronomy, of which 3 Latin translations have been published, the first in 1498. It contains little original matter, however, being chiefly taken from the *Almagest* of Ptolemy.

ALFIERI, **VITTORIO**, count, Italian tragic poet, born at Asti, Piedmont, Jan. 17, 1749, died at Florence, Oct. 8, 1803. His life is not less remarkable than his writings and his character; or rather the three are singularly associated with and illustrative of each other. The first half of his existence was an aimless search for excitement, alternate dissipation and melancholy; and the last signalized by devoted intellectual effort. His temperament was alike sensitive and impassioned; his will indomitable; his heart equally mastered by love and ambition. With aristocratic connections he cherished an ardent hatred of tyranny; with an intense love of country he was an incessant traveller; with a wasted youth he was a studious man, and with ample means, frequently a self-denying economist. He had a strong dislike of the French, and an invincible fondness for horses; subject to frequent crises of feeling he could live in sequestered content, only with books or a friend;

restless when destitute of loving companionship, he could not write except while his affections were gratified; travel was his resource in disappointment, composition in periods of satisfaction. He exhibited all the caprice, sensibility, and earnestness of the poetical character. His autobiography is dated May 14, 1803, and on Oct. 8, the same year, he died, and was buried in the church of Santa Croce, at Florence, where a monument, sculptured by Canova, marks his tomb. To estimate the value and influence of his writings we must recall the circumstances of his age. Nearly every English traveller in Italy a century ago, who has left the record of his impressions, describes the national life of that beautiful land as collapsed; the associations of her classic and mediæval remains, the peerless excellence of her art, the fascination of her climate and scenery offer an entire contrast, in their combined and permanent attraction, to the listless stagnation which broods over her civil, literary, and social existence. Such was, and, to a considerable extent, is the first impression of the intelligent and observant foreigner in Italy; but those who reside long enough in one place to explore beneath the surface, to discover the redeeming traits of the people, and to realize the latent force of the national mind, soon learn to attribute to circumstances the greater part of this effete civilization; and the justice of this inference is apparent from the fact that, at intervals, when freed from external restraint, or inspired by great occasions, the intellectual force once exhibited, and still embodied by Dante, Tasso, Galileo, Macchiavelli, and Petrarch, and by the painters, architects, and sculptors of the 15th century, the soldiers of the middle ages, and the composers of a later era,—in a word, the unparalleled genius of expression in all its forms and phases which distinguish the race, in a historical and artistic view,—reasserts itself with all its original emphasis. Immediately preceding the French revolution, this lapse of vitality in the political and literary world of the peninsula, was singularly coincident. The tone of society was frivolous, owing to the want of a sphere for manly ambition, and the neglect of female education; bigotry and licentiousness dwarfed or palsied minds of native vigor; music and gallantry were the chief recreations; patriotic hopes were chilled; the machinery of despotism cast a profound shadow over the land. Here and there a patient and sequestered scholar, now and then a secluded and aspiring woman, cherished an ideal of mental enterprise, or of civic emancipation, kept aloof from petty intrigue, and lived self-devoted to a noble purpose; but isolation marked these exceptions; two essential requisites of social as well as individual progress were wanting to the age and the people—scope and motive—the impulse and the opportunity; and, therefore, to the past only, could the Italian look with complacency, and to the future alone with hope.

By a fortunate coincidence the poet who was destined to break this spell, and give the world assurance that the love of liberty, and the power of free thought, yet survived in his country, has bequeathed, with the noble legacy of his muse, a minute and authentic description of the manner in which a youth of high lineage, and more than average fortune, was educated then and there. Alfieri learned the rudiments of the Latin tongue from an amiable priest; but, at the age of 9, he was removed to the public school of Turin. His picture of the locality of this institution is elaborate; and he mentions, as an aggravation to the restricted lot of the students, that "on one side was a theatre which we were only permitted to visit about 5 or 6 times during the carnival; on the other, lived the pages who attended on the court, and who, continually hunting and riding, appeared to enjoy much freer and happier lives than the poor imprisoned boys." Here the future poet experienced a bitter ordeal under the name of "education," subsequently written down with all the indignant earnestness which invests the abuse of childhood, in the retrospect of a brave and tender soul. He was the victim of menial tyranny, being ostensibly attended by a servant, who took advantage of the helplessness of his young master; he was, according to the etiquette of the establishment, a prisoner, his sleep was inadequate, and his food unwholesome; while a *physique* naturally delicate was thus injured by neglect of the laws of health, his mind suffered no less from the system of instruction. He tells us that he acquired considerable Latin by rote, that he could construe Nepos, and Virgil's Eclogues, but had no clear perception of either. During the second year, he exhibited talent in composition, and gained a clandestine knowledge of Ariosto, Annibal Caro, and Metastasio; but, under the name of rhetoric and philosophy, a pedantic and useless training, which he calls "the contrivance of those no-studies," was followed by an equally irksome course of physics. The chief recreation of Alfieri during these monotonous and ungenial years, was a visit to his sister, who was receiving her education at a neighboring convent. In 1762, he commenced the study of the law; but as is usual when the poetical mind attempts to grapple with jurisprudence, there was little genuine progress, and that was seriously interrupted by a cutaneous disorder to which the young student was liable. He found solace, however, at this juncture, by learning to play on the harp, having a strong and natural love of music. By the laws of Piedmont, a ward is emancipated from his guardian at the age of 14, and is placed under a curator, who leaves him master of his annual income. This was a moment of elation to the long imprisoned boy; his villanous servant was dismissed; and the insults, and even beating to which he had so long impatiently submitted, ceased. He began to frequent a riding school, and equestrian exercise

greatly improved his health. His uncle having died, his domestic tormentor being sent away, and his income at command, the repressed energies of the boy soon germinated into the exuberant recklessness of youth. Alfieri threatened to abandon law, and his teachers, to prevent this, passed him, at a word, to the first apartment, where the students enjoyed full liberty. Here he formed acquaintance with foreigners, and especially Englishmen, became fond of dress and pleasure, and ran in debt. Thus, from the most unnatural restraints, he was suddenly emancipated, just as boyhood was merged in youth, and with ample means, and no one to check or guide his impulsive and susceptible character, without the discipline of true education, or the knowledge of any single elementary branch, Alfieri was free to expatiate in the meretricious world of French romance, dip into Fleury's ecclesiastical history, and dream over the Arabian Nights; while these desultory readings were diversified by mad-cap feats of equestrian skill, and frolics, which, at all events, tended to invigorate a frame previously weak, and to nerve a temperament constitutionally morbid, but left the mind of the young nobleman unfurnished, and without salutary exercise or aim. With no one to control him but his semi-governor, as Alfieri calls the curator, he soon rebelled at the espionage of a special guardianship, from which his companions were exempt. He was confined to his own apartment, on one occasion, for three months, as a punishment for "being absent without leave and unattended." The incident called forth the singular energy of volition which, in after life, redeemed his mind from inertia and dissipation. Having resolved not to ask his liberty, he suffered all the privations and gloom of solitude which, with his sensitive temperament, were doubly painful. From this "brutal life" he was suddenly freed, to attend the wedding of his sister. A month of country life gave him an opportunity to fall in love for the first time, and although no serious attachment followed, the experience roused the dormant but profound sensibility of the future poet. A visit to Genoa, soon after, woke another passion of his vehement nature, the love of travel. After nearly eight years of unfortunate academic experience, Alfieri entered the army, but here subordination proved as irksome as at college, and he consoled himself for the pains of military discipline by convivial reunions, extravagant dress, and horsemanship. At last the restless temper of the mere pleasure-seeker yielded to an invincible desire for change of scene, and, by ingenious devices, he succeeded in joining three young men who were about to travel with an English Catholic tutor; and, having the consent of his brother-in-law and that of the king, after a night of feverish anticipation, he left home "with indescribable transport" in a carriage, with four gentlemen and five servants,—his own valet eventually becoming their *cicerone*, the "rest

of us" naively says the poet, "were all babies or dotards." The next 10 years of Alfieri's life were chiefly devoted to travel, first through Italy, and then through France, England, Germany, and the north of Europe. The advantages we are inclined to expect from such opportunities for studying nature and mankind, were almost wholly lost on Alfieri. He began his pilgrimage at too early an age, and with a mind indifferently furnished and undisciplined. A morbid self-absorption, the want of liberal curiosity, and human interest, caused him to wander from scene to scene in an unsympathetic mood or with restless dissatisfaction. Now and then a gleam of enthusiasm redeems the narrative of his journeys; but his traveller's experience, like his youthful education, was anomalous. He was moved at the tomb of Michel Angelo, and, when he first beheld the sea; he conceived an immediate partiality for London, and studied English; he was presented at courts, enjoyed the French drama, had a love-intrigue in Holland, a duel in one place, and a fall from his horse which broke his collar-bone in another; at one time read, with zest, Helvetius and Montesquieu; became enamored of Plutarch's heroes, "practised Italian" at Denmark, which he had quite neglected in Tuscany; now retrenched his resources even to parsimony, and again indulged in wild extravagance; profound melancholy alternated with fitful passions or listless indifference; occasionally he finds a philosophic truth, or a bold generalization wherewith to enliven the sad record of these objectless and unsatisfactory wanderings. He soon grew weary of places, and depended upon chance for society. His servant "Elia" appears to have been his most faithful companion. Sometimes a curious adventure or a fit of anger or caprice diversifies the story of this epoch in his life; but his indifference to celebrated objects of interest and remarkable characters, was extraordinary; while the pleasure he often expresses at the sight of what is beautiful, the enjoyment he can take in intellectual society, and his unaffected admiration for what is noble in achievement and glorious in nature, make the record of these aimless journeys the more provoking. Wide, for that day, was the range of the poet's travel; and although he declares it fruitless, it is probably impossible to estimate the indirect influence upon a susceptible and expanding mind, however careless and perverse, of so much novelty and variety as filled his senses, if they did not enrich and invigorate his soul. At the age of 24, after 5 years thus passed, Alfieri took a handsome house and renewed his college friendships; a kind of literary *divertissement*, in the form of satirical essays, which enlivened their social gatherings, gives us the first intimation of that latent propensity for authorship, stifled so long, as he himself tells us by "full liberty," "female society," and "horses;" but, from this period, although "plunging into another sad love-affair" and, for the most part, vegetating rather than living as a rational being, a "strong and

enthusiastic love of study and labor" asserted itself as a normal principle of his wayward and proud nature. A dangerous and peculiar illness now sobered the passions if it did not immediately mend the life of Alfieri; and although on his recovery he continued awhile to play the *cavaliers servents*, and resigned his military commission, while keeping vigil by the sick bed of his mistress, he sketched a few scenes between Cleopatra and Antony in Italian; and, thrown aside as such a crude attempt deserved, it yet opened the dramatic vein effectually in the author's mind. His next enterprise was a bold attempt at self-conquest; he was disgusted at the amorous slavery of his position; took a journey to Rome in the hope of breaking away from his enchantress; returned and endured a long and tearful struggle, which found expression in a sonnet, "composed slowly, and with difficulty." Father Paciaudi, an intelligent friend of the count, praised this effusion, and encouraged him to undertake a course of Italian reading. This good advice was partially followed. Carnival fooleries, and combats with a "rabid passion," as well as habits of indolence, so much interfered with the good and great resolutions induced by "a new, high, and beautiful love of glory," that the determined poet resorted to the expedient of making his faithful valet tie him into a chair, throw over him a cloak to hide the cords, and leave him for hours to study. "Cleopatra," was gradually finished. A farce called "the Poets," followed. These two pieces, we are told, were received with great applause on two successive evenings. "I had already heartily repented," says Alfieri, "of so rash an exposure to the public, although I was treated with the greatest indulgence, and I prayed the actors and the manager to stop any future representation. But," he significantly adds, "from that fatal evening, a wild enthusiasm began to flow through every vein of my body, and I burned to bear off one day meritoriously the palm of the stage, as I had never before burned with the flames of love." In the year 1775, and at the age of 27, Alfieri thus fairly began his career as a dramatic author. His resources for this most difficult sphere of literary enterprise are thus summed up by him with an amusing candor: a resolute, and indomitable spirit, an intense abhorrence of tyranny, susceptibility to the tender passion in its extreme forms, a vague remembrance of the French tragedies he had seen acted at Marseilles and Paris, no artistic culture, no command of expression in any tongue, and a petulant, presumptive, and reckless temper. Thus furnished, he began to retrieve his education, went back to the elements of learning, studied grammar, and taking from his desk two tragedies, "Filippo" and "Polinice," written three months before "Cleopatra" was produced, began the task of translating the French prose in which they were written, into Italian verse. This experiment revealed his ignorance and

want of facility so completely, that he was almost reduced to despair, and became convinced of the necessity of what he called un-Frenching and then Italianizing his mind. First, he retreated to the mountains of Piedmont, and lived with two genial abbés, one literary, and the other musical; the former read to him, and the latter taught him the guitar. He studied Horace and Phædrus; he conned Dante, Petrarch, Tasso, and Ariosto; he went to Tuscany, with introductions to scholars; talked, read, and finally thought in Italian; at Pisa, wrote "Antigone;" at Sienna, the "Congiura dei Pazzi," the latter subject recommended by his invaluable friend, Francesco Gori Gandinelli. He became so excited as he pondered Macchiavelli, for the materials of this tragedy, that he laid it aside for weeks, to write an indignant treatise against "tyranny;" a Livy borrowed on his journey, gave him the hint for "Virginia," as did Voltaire's "Oreste" for his dramatic version of that Greek theme. These travels and sojourns in the fairest and most cultivated cities of Italy, were quite a contrast to his previous aimless wanderings; he had now an absorbing object; he sought with avidity for literary companionship and sympathy; he worked incessantly to form his style, to express his ideas, and to develop his art. One of the first lessons acquired by these studies, was a conviction that the hitherto merely graceful use of the Italian language, in a dramatic form, was unjust to its genius. He perceived that a language capable of the terse and severe beauty exhibited in the *Divina Commedia*, was fitted to give intense expression to the tragic muse. Accordingly, his most original characteristic is the energy, directness, and new power with which he moulded the "soft bastard Latin." Two circumstances, nearly simultaneous with his literary development, tended greatly to confirm its triumph. After much vexatious negotiation, he emancipated himself from the ties which bound him to Piedmont, and he formed a lasting and satisfactory, though illegitimate attachment, which had the effect to concentrate his personal sentiment, and make his life more regular. Having settled the bulk of his fortune on his sister, he took up his residence in Florence, and there pursued a methodical course of study and composition, in the society of his beloved countess of Albany, the unfortunate, but highly gifted wife of the last of the Stuarts. Intellect and heart were thus fixed, at last, each upon an object of permanent attraction, and thenceforth the poet's work went bravely on, interrupted only by certain political or domestic vicissitudes. He describes the troubles of his lady love, and his mortification at being obliged to "court the favor of men in power, to obtain the emancipation of an innocent victim;" for a time she remained in a Florentine convent; "the reasons," says her lover, "for this rupture with her husband were perfectly understood; the separation was universally approved." "She

took her leave," he adds, "for Rome at the close of December, and I remained in Florence, solitary and abandoned. Incapable of every kind of application, I no longer cared for the glory I had so ardently longed for. I now felt that without her I was not half myself." He had invested 117,000 francs in the French stocks, which secured him an independence; he had four horses; his friend, the Abbé di Caluso, had returned to Turin; and he, therefore, left Florence to visit Gandinelli at Sienna, and a dearer object still at Rome. After some interviews at the gate of her convent, the count repaired to Naples; and returned to the "city of the soul" after a few weeks, where he, for a while, gave himself up to "diplomatic arts;" "I did every thing," he says, "and bowed myself to every thing, and I remained in Rome tolerated by those *Barbassori*, and even aided by the hireling priests who felt or feigned to feel an interest in the affairs of my lady." When, at last, restored to the society of the countess, he again took up the pen with ardor, and, in a marvellous short time, had ready for publication no less than fourteen tragedies. Obligated, from considerations of propriety, to quit Rome, the grief occasioned by this renewed separation, rendered him for the time insensible to the severe criticisms which were made upon his tragedies. His literary career was greatly diversified by his favorite pastime—travel. He continually visited different parts of Italy, made several journeys into England—one expressly to buy horses; and his description of the transit of those noble animals over the Alps, is a vivacious episode of his memoirs. He resided, at intervals, at Paris, and after a three years' sojourn there, where he superintended Didot's edition of his writings, he beheld the first scenes of the revolution. One of his last favorite retreats was "Alsatia;" and Florence witnessed the close as it had the opening of his literary life. He always shrunk from the atmosphere of courts, and breathed more freely after crossing the frontier of his native state. His last visit there enabled him to assist at the production of "Virginia," and to see his venerable mother. The sudden death of Gandinelli at Sienna, repeated attacks of illness, pedantic strictures upon his tragedies, and the invasion of his country by the French, were among the trials of Alfieri's closing years. But his mental activity and strong affections consoled him to the last; he gave vent to his "excited poetical gall" in epigrams; he wrote satires, panegyrics, and sonnets; he translated Virgil and Terence, and, at fifty, had the courage to study Greek, until Homer and Pindar became familiar and endeared. But upon his tragedies were bestowed his best time and attention, his hopes and his enthusiasm; sketched out at first with ardor, then elaborated with care,—revised, modified, polished, he never really completed them until the proof-sheets had been again and again altered. A letter in reply to one written

on the publication of four of them, by Calso-bigi of Naples, served as a critical and historical preface, which gives us the author's views. Their literary rank is permanent. Remarkable for a vigor and intensity of expression worthy of the best days of Italian literature, their classic subjects and stern outline, however opposed to the romantic school, have yet a grand and solemn charm. Their form is severe, but their spirit often sublime. It is not imagination so much as will that they embody. He deals with passions in their naked simplicity. It is from the emphasis of concentrated emotion, and not through the warm tints of fancy and sentiment, that he attracts the reader. A brief reply, an eloquent phrase, a situation of great dramatic interest—the sententious dialogue, the stern purpose, stand out in bold relief, and impress the mind with grace or pathos, moral energy or deep intuitions—but it is through the strong and few lines, and not the light and shade, the color and combination. "Saul" haunts us like Lear; and "Myrrha," performed by a woman of genius, is inexpressibly affecting. No modern genius is more vividly associated with Italy than Alfieri. At Asti the traveller is shown the chamber where he was born; at Turin, one of the principal streets bears his name; and in Florence is his tomb. In the latter city also may be seen his portrait, on the back of which is the sonnet wherein he so acutely drew his own mental features. Two of Alfieri's life-long peculiarities, as we have seen, were an inveterate dislike of the French and a passion for horses; the former prejudice originated in a boyish detestation of a French dancing-master at Turin, whose person, manners, and profession, were equally odious to the poet, and the atrocities of the revolution confirmed this anti-Gallicism. So strong was his feeling for the equine race that he incurred great vexation in transporting his favorite animals from place to place, used to dream about them, wrote of them with enthusiasm, and would never sell one—preferring, if obliged to part with him, to do so as a gift. Alfieri's political character is somewhat anomalous; he hated kingcraft, and prized his own nobility chiefly that he was free to abuse it; his most intimate friend, Gori of Sienna, was a mercer; he professed democratic sentiments, but was exclusive and fastidious in his social character; he dedicated his tragedy of *Bruto Primo* to Washington. After Martello, Maffei, and Conti, Italy may be said to have had tragedies, but she could not boast a native school in this department of letters. To Alfieri belongs the distinction of having supplied this want, and created this national element. Without pedantic obedience to the Grecian or the French drama, he strove to embody the profound earnestness of the one and the modern form of the other in the language of his country; and in this he succeeded. Energy and precision are the characteristics of his style; many passages are deeply impressive from their force and con-

centration, few from their fluent grace or natural ease. The mind is kept on the strain of heroism or anguish, not by elaborate pictures, but through intensely clear dramatic utterance. Cesarotti laments that his language is so uniformly energetic and so seldom genial; Parini, in one of his sonnets, makes a similar criticism; and Schlegel, while he accords high praise to "Saul," objects that the Italian dramatist makes his virtuous characters unlovable. But these and like observations only indicate that Alfieri's style lacked range and variety; that he harped too much on one string,—that he was all outline and no color; which only proves his individuality, and the stern necessity of a style which an effeminate literature, a passion for his country and for freedom, and the exercise of a powerful volition combined to intensify, and to render earnest and profound, resolved and terse, both in conception and language.—Two editions of Alfieri's complete works have been published. 22 vols., 4to, Pisa, 1808, and 22 vols., 8vo, Padua, 1809-'10. The best edition of his tragedies, autobiography, and some of his minor works, is contained in the Milan collection of the Italian classics, entitled *Opere Scelte*, 4 vols., 8vo, 1818.

ALFONSINE TABLES, an astronomical work, completed during the reign of Alfonso X. at the cost, as it is stated, of 400,000 ducats. They are substantially the same as the Ptolemaic tables, but the length of the year is more correct. The tables are constructed for the meridian of Toledo, and the year 1256. They were not held in great esteem by subsequent astronomers.

ALFONSO is the name of several kings of Spain and Portugal, variously written as Alonso, Alphonso, Ildefonso, and in Portuguese, Affonso. They distinguished themselves in the contests with the Moors, and the establishment of a Christian kingdom. There were 5 Alfonsos in Aragon, 6 in Portugal, and 12 in Castile. The kingdom of Leon was the oldest of the minor Spanish monarchies, and sprang from the principality of Oviedo. There is some question as to the commencement of this kingdom, which by German critics is said to have commenced in 914, but the general opinion is that it commenced with ALFONSO I., who was elected king of Leon, about 789. He was a descendant of Leovigila, and son-in-law of Pelayo, a name famous in Spanish chronicles. He carried on a war of extermination with the Moors, and substituted Christian colonies in the stead of the towns and communities which he suppressed. His diligence in founding churches and convents earned him the appellation of "the Catholic." He died A. D. 757.—ALFONSO II., elected king 791, died 848, abolished the annual tribute of 100 Christian maidens to the Moors. In his reign lived the famous Bernardo del Carpio, the hero of Spanish romance, the pattern of chivalry, and the opponent of the Frankish hero Roland.—ALFONSO III., the Great, extended the limits of the Christian rule to the Gua-

diana. He was constantly engaged in wars with the Mohammedans, and with his own subjects. A conspiracy was fomented against him by his discontented nobles, in favor of his son Garcia, who was taken prisoner by his father. The old king unable to bear up against the annoyance, abdicated in favor of his son in 910. The last exploit of his active life was a victory over the infidels, as general of his son's troops.—ALFONSO VI. son of Ferdinand I., succeeded to the throne of Leon, 1066, and died in 1109. Under the preceding reign the kingdoms of Leon and old Castile had been united, and after much internal warfare with his brothers, among whom the father had parcelled out the kingdom, Alfonso made himself master of Leon, old Castile, the Asturias, and Galicia. In his warfare against the Saracens he distinguished himself by his conduct and bravery. His successes, and in particular the terrible siege and recovery of Toledo, led to the invasion of the peninsula by the Almoravides, against whom Alfonso furnished assistance to his old enemy, the king of Seville, but ineffectually. Rodrigo Diaz de Bivar, the celebrated Cid, from Sidi (lord), the name given him by the Moors, lived in this reign. Alfonso VI. died without heirs male, and the united crowns fell to his daughter Urraca, a name generally reprobated by Spanish historians. She married Alfonso I. of Aragon, who in her right claimed the crown of Castile and Leon, and became Alfonso VII. of that kingdom. The marriage was, however, dissolved, on account of Queen Urraca's misconduct.—ALFONSO X. the Wise, born in 1222, died 1284. He was the son of Ferdinand III., and surnamed the Wise on account of his own learning, and the encouragement he afforded to learned men. He vanquished the Moors, and compelled the king of Granada to do homage to the king of Castile, and to pay a considerable sum of money. In 1256, Alfonso was elected emperor of Germany, on account of his relationship to the late emperor; Richard of Cornwall was supported by some others of the electors. The necessity of Alfonso's presence in Spain prevented him from visiting Germany, and his power remained a mere shadow, and in 1273, Rodolph of Hapsburg put an end to the interregnum. In his domestic government Alfonso was particularly unfortunate. By debasing the coinage he irritated the people; by abridging the privileges of the nobility he alienated their allegiance. In 1269 the nobles, and Prince Philip, Alfonso's brother, joined Alhamar, king of Granada, in a revolt, and a sanguinary civil war was commenced. The death of the king of Granada, in 1278, suspended the contest, in which the new king was unwilling to join. The troubles of Alfonso's reign were not however ended, for Abu Yussuf, king of Morocco, seized the opportunity of Alfonso's absence in France to invade the kingdom. The crown prince, Don Fernando, in attempting to repulse them, was slain; Don Sancho, the king's second son, was more successful. He forced them

to retire to Africa. Sancho now put forward claims to the crown, to the exclusion of his nephew, the son of Prince Fernando, and a cortes, summoned at Segovia, named him heir to the throne. This decree Alfonso refused to ratify; and Sancho and his supporters flew to arms. The king summoned a cortes at Toledo, the rebels summoned another at Valladolid, which was more numerously attended, and passed a decree deposing Alfonso from the throne. Alfonso now took the resolution of appealing to the Moors of Africa for assistance, and retiring to Seville he wrote from that city to Alonso Perez de Guzman at the court of Abu Yussuf, describing his position; Guzman was sent to Seville with a considerable sum of money, and afterward landed at Algeciras, whence they advanced to Cordova, and laid siege to that city. The Moors accomplished nothing, however, and after 20 days the siege was raised. Abu Yussuf taking offence at Alfonso's suspicions of his loyalty, withdrew his troops to Africa. Alfonso now negotiated with France, but the interference of the pope in his behalf proved more effective. Sancho was excommunicated, and the kingdom laid under an interdict. Alfonso did not, however, live to reestablish peace, he died in 1284.—As a man of letters, Alfonso deserves particular attention, as the father of Spanish prose, and as one of the most learned men of his age. It was his misfortune that he was born heir to a throne, and compelled to pass his life amid the cares of state, for which he was little fitted. Had he been placed in a private station, where he could have devoted himself wholly to literature, he would have possessed even a higher claim to the gratitude of posterity, and a still better title to the appellation of "the Wise." He laid the foundation of Spanish prose by causing a translation of the Bible to be made into that language, by ordering all legal proceedings to be conducted in it, and by the excellent specimens which he himself gave of it in his writings. He is also distinguished as a poet, and as a man of science. Of his poetry we possess the *Cantigas* or chants, composed by him in praise of the Madonna, two stanzas of his *Querellas* or complaints, composed during the misfortunes of the later years of his life, and the *Tesoro* or treasury, which is a treatise on the transmutation of the baser metals into gold, the genuineness of which is, however, doubtful. The *Cantigas* are written in the Galician dialect, are distinguished by a simple and Provençal style, and some of them have considerable poetical merit. The two remaining stanzas of the *Querellas* are elegant, and are written in the Castilian language. The *Tesoro* is partly written in an incomprehensible cipher, and partly in Castilian, but has little merit. As a prose writer, he is entitled to much higher praise. His father St. Ferdinand, in order to remedy the evils arising from the fact that the various towns and provinces of his kingdom were possessed of different

local *fueros* or privileges, which they had obtained at various times, projected a general code of laws for his whole kingdom, a portion of which was drawn up during his reign. This fragment is styled *El Selenario*, and is, doubtless, partially at least, the work of Alfonso. The latter, however, did not complete it, immediately on his accession to the throne, but, having prepared two smaller codes, of which the first, called the "Mirror of all Rights," seems never to have been put in force, and the other, styled *Fuero Real*, or the Royal charter, was drawn up more especially for the use of the city of Valladolid, was at last enabled to accomplish the long-desired end by the preparation and promulgation of the celebrated body of laws, known usually as *Las siete Partidas*, or "The seven Parts," so called from the number of portions into which it is divided, but named by its author the *Selenario*, from the code of his father. The materials for this work were drawn from the Justinian code, the Visigothic laws, the local institutions of different parts of the kingdom, and other sources. Its enforcement was long resisted by the great cities, who obstinately held on to their ancient privileges, but it was at last, in 1348, established on a firm footing, and has been, ever since, the basis of Spanish common law, and has even, by the admission of Florida and Louisiana into the United States, been introduced into the legal system of our own country. It is written in the form of a sort of treatise on legislation, religion, and morals, and on the mutual duties of a king and his people, containing explanations of the laws which it lays down, as well as the reasons for their establishment, and furnishing a variety of allusions to the manners of the people at the time, the whole written in a quaint and simple style, and having an interest which attaches to no similar work. Not only was it unapproached, as a literary work, by any previous Spanish prose writing, but it is declared, by Marina, an eminent Spanish writer, to be unequalled in purity and elevation of style by any prose work of the Spanish literature of the three succeeding centuries. In its preparation, Alfonso had the aid of the best lawyers he could procure, but there is no doubt that its literary merit, at least, is due to him. Another important work of which he is the author, is the *Crónica General de España*, or "General Chronicle of Spain." In the preparation of this, also, Alfonso was aided by learned men, and especially by persons having an acquaintance with the Arabic literature. It is divided into 4 portions; the first beginning with the creation of the world, and coming down to the conquest of Spain by the Visigoths, devoting considerable attention to Roman history, but barely touching upon that of the rest of the world; the second treating of the Visigothic monarchy and the conquest of Spain by the Moors; the third continuing the history to the reign of Ferdinand the Great, at the beginning of the

11th century; while the 4th and last brings us to the death of St. Ferdinand, the father of the author. The most interesting of these are the third and fourth periods, especially the former, which contains many of the romantic traditions of the Spaniards, which are told in a simple and poetical manner, and possess great interest. The greater part of the work, though interesting and valuable as a literary performance, must be read with caution regarded as a history. In the latter portion, however, as the chronicler approaches his own times, it becomes more worthy of reliance. Alfonso not only wrote himself, but he encouraged others in literary labors, directed the compilation of various works, and established on a firm basis the university of Seville. He was also eminent for his astronomical and mathematical attainments, and for his researches in alchemy. The astronomical tables which bore his name, and were probably constructed by certain Moorish astronomers invited by him to his court for that purpose, were celebrated for a long time.—For an account of the position of Alfonso with regard to the development of the literature of his country, see Ticknor's "History of Spanish Literature."

ALFONSO I., of Portugal, was the first king of that country. He was several times at war with Alfonso VIII. of Castile; but, on the establishment of peace, he turned his arms against the common enemy. He fought a battle in 1139, on the plains of Ourique, against the king of Badajoz and his allies, and the slaughter was so immense that it completely broke the Arabic power in Portugal. In 1146 he took the town of Santarem, after an obstinate defence, and put to the sword every living soul; and the following year these terrible victories struck terror into the Saracens, and Portugal was free. Alfonso I. also instituted a code of laws, still known as the laws of Alfonso. He died at the great age of 91. He was succeeded by his son Sancho I.—ALFONSO II., son of Sancho, was remarkable for the attempt he made to curtail the immunities of the clergy, which, however, he was compelled by Honorius III. to abandon.

ALFONSO V. of Aragon, and I. of Sicily, surnamed the Magnanimous, born about 1394, died June 27, 1458. He succeeded his father in 1416, and the first act of his reign displayed the chivalric generosity of his character. Having received a list of nobles who were conspiring to dethrone him, he tore the paper in pieces without reading it. He was fond of adventure, and in the early part of his reign, left Spain to make good his claims to the sovereignty of the islands of Sardinia and Corsica, which were then partly in the power of the Genoese. In the war which followed he met with some success, but soon relinquished this project for more dazzling schemes of ambition. Joanna, queen of Naples, being attacked by Louis III., duke of Anjou, sent to Alfonso, offering to make him duke of Calabria, and heir to the throne of Naples, if he would aid her against the duke of

Anjou. Alfonso eagerly accepted this proposition, abandoned Sardinia and Corsica, over which his sovereignty thenceforth amounted to but little, and, sailing to Naples, obliged the duke of Anjou to raise the siege, and, not long after, to make a peace on terms advantageous to the queen of Naples. But it was not long ere the queen became jealous of the power of her new ally, and open war at last broke out between them. The queen summoned to her aid Sforza Attendolo, the general of the duke of Anjou, who defeated Alfonso. The latter, however, was soon enabled by the arrival of fresh troops from Spain, to make himself master of the city of Naples, and to hold his enemies in check. But his presence was now required in Spain to protect his kingdom of Aragon, which was then at war with Castile. Accordingly, leaving his brother Don Pedro in charge of his affairs in Naples, he sailed for Spain in 1428. On his way thither, he made a sudden descent on Marseilles, then belonging to the duke of Anjou, captured the city without difficulty, but neither sacked it, nor carried away from it any booty, with the exception of the body of a dead saint, Louis, formerly bishop of Toulouse. Alfonso passed about 8 years in Spain, and then, having arranged his affairs in that country, again turned his attention to Italy. Here matters had taken an unfavorable turn, and the Spaniards, pressed upon by the queen, aided by the pope, the dukes of Anjou and Milan, and the Genoese, were almost overwhelmed. Alfonso arrived there in 1432, and, seeing the desperate state of affairs, and being ever eager for new adventure, sailed to the island of Jerba on the coast of Africa, which he conquered, after gaining a victory over the bey of Tunis, to whom the island belonged. After this exploit, he went to Italy, where he employed himself with negotiations to bring about a reconciliation with Queen Joanna, and with intrigues to obtain adherents in Italy. In 1435 the queen died, bequeathing her crown to René of Anjou, count of Provence, brother and successor of Louis III., who had died some time before, and Alfonso, thinking the occasion a favorable one for asserting his claims, renewed the war, and besieged the city of Gaeta by sea and land. But in a naval battle near the island of Ponza, he was totally defeated by the Genoese and the duke of Milan, he himself was taken prisoner, together with a great number of his followers, and, shortly after, his land forces were routed and dispersed under the walls of Gaeta. These disastrous events seemed to have ruined his cause; but having by his nobleness of disposition and gallant bearing gained the affection of his captor the duke of Milan, the latter set him at liberty and became his ally, and Alfonso was thus enabled to resume his operations under better auspices. After a contest of several years, without effecting much, Alfonso succeeded, by the treachery of one of the adherents of René, in getting the advantage of his rival, and, in 1442, made him-

self master of Naples, and compelled René to fly from Italy, and seek refuge in his county of Provence. Alfonso was soon after recognized as king of Naples by the assembled states of the kingdom, and by Pope Eugenius IV., which latter also issued a bull legitimatizing Ferdinand, the bastard son of the king, who had no legitimate children. From this time Alfonso resided in Naples, exerting himself to improve the condition of that kingdom, the affairs of which, during the reign of Joanna II., and the disturbances which followed, had fallen into much disorder; and, though taking part in some Italian wars of little importance, passing the remainder of his life in comparative quiet. At his death his brother John inherited the kingdoms of Aragon, Sardinia, and Sicily; while his son Ferdinand received the crown of Naples. Alfonso was brave and generous, but of an amorous and impetuous disposition. He was a patron of literature and the arts, and was himself quite a learned man, considering the active life he led. One fact only seems to reflect upon his generous character. In 1429, the archbishop of Saragossa, the enemy of the king, mysteriously disappeared. No inquiry was ever instituted, but his death was attributed to the hostility of Alfonso. Such a crime, however, is little in accordance with the general tenor of his life, and it may reasonably be supposed that there were circumstances tending to put a different face on the matter, of which we at this day are ignorant.

ALFORD, HENRY, English poet and theologian, born at London in 1810; fellow of Trinity college, Cambridge, 1835; vicar of Wymeswold, Leicestershire, 1835; Hulsean lecturer at Cambridge, 1841; minister of Quebec chapel, London, 1858; dean of Canterbury, 1856. Mr. Alford's first poetical venture, under his own name, was a publication, facetiously but not unkindly spoken of by Christopher North as "an egg with two yolks." This was the "School of the Heart and other Poems," in two volumes, issued at Cambridge in 1835. The minor poems of this collection had been issued anonymously in one volume, at the same place, two years before, and had met with a reception which encouraged their author to avow the paternity of them on his removal to the vicarage of Wymeswold. Mr. Alford's appearance in the field of English poetry was made, therefore, almost contemporaneously with the debut of Alfred Tennyson, and although nothing can be more deceptive than any scientific classification of poetic genius, it is perhaps fair to say of him that he holds of Wordsworth and Cowper by a descent as direct as that which links the literary features of the author of *Ulysses* and *Locksley Hall*, *Maud*, and the *Princess*, with those of Shelley, Coleridge, and Keats. Poetic fame, however, has been with Mr. Alford rather an aspiration than an aim, and the contemplations in which he delights tend to fulfil themselves rather in the sermon than the song. His largest and most elaborate work, the "School of the Heart,"

is not only didactic in tone, but is absolutely formless in any artistic sense, and more resembles the religious improvisations of a refined and delicate thinker, than the solemn symphonies of a profound and impassioned poet. It abounds, however, in passages of delightful verse, which often only lack the final touch of the master-hand to have become as memorable as the majestic musings of the "Excursion" itself. His descriptions of nature are pervaded with sincere and exquisite feeling, and a singular absence of all affectation charms us in his more emotional appeals to human experience and the sympathies of the human soul. It is in his lesser poems, however, that Mr. Alford has shown himself most truly poetic, and many of his sonnets will long survive all the changes of popular taste and all the caprices of literary fashion. Such, for example, are a series of elegiac verses upon the death of a sister, a series of unequal but extraordinary merit, the rarest and most complete of which must take rank with the most beautiful works in this kind that adorn our literature. The atmosphere of Mr. Alford's poetical writings is always pure and soothing; his theological views tinged rather than coloring the substance of his thought, and modifying the essentially religious temper of his disposition, but so far as to identify in him the Anglican teacher and the Cantabrigian scholar. The 2 volumes of the Cambridge collection were republished with numerous additions, in 1 single volume, under the supervision of the author, by Messrs. Ticknor and Fields, of Boston, in 1854, and extended the reputation of this blameless and agreeable writer into a new sphere of influence and of appreciation. In 1854, while still minister of Quebec chapel in London, Mr. Alford issued the 1st volume of the 2d edition of his *opus magnum*, a critical edition of the Greek Testament for the use of theologians. The first edition of this volume had been published 4 years previously, and had been followed by the 2d volume in 1852. But it is on the revised edition now (1857) in progress that Mr. Alford rests his claim to renown as a theologian. No theological work of equal excellence with this has been produced for many years by any member of the English church, and Mr. Alford justly deserves the distinction of standing almost alone among his brethren on a level with the critical theologians of Germany. Adopting the text of Tischendorf, Mr. Alford has so carefully revised this standard of biblical philology, as to leave room for few changes in the future, while his digest of various readings is incontestably the best ever presented to the world. The exegetical commentaries and the prolegomena of Mr. Alford will be variously valued, of course, by persons of various theological views, but no one will deny to him the praise of exemplary diligence in the collection of authorities, of acuteness in the investigation of vexed questions, of a noble candor not always characteristic of critical scholars, and of a sound common sense equally rare and admirable.

ALFORT, a pleasant hamlet of France in the department of Seine, about 5 miles S. E. of the French capital. It numbers among its institutions a royal veterinary college, an establishment designed to teach rural economy, and a fine botanical garden.

ALFRED THE GREAT, king of the West Saxons in England, was born at Wantage in Berkshire, in 849, and died Oct. 28, in the year 900, as is supposed. By many historians he has been pronounced the wisest and greatest prince that ever ruled in England, and certainly none have surpassed him. He was the fifth and youngest son of Ethelwolf, king of the West Saxons, and seems to have been his favorite child. It has been conjectured that he was intended to be his father's immediate successor, as he was sent to Rome in his 5th year with a train of attendants, where Leo IV. (according to the Saxon chronicler) "consecrated him king." However, the throne was first occupied by 8 of his brothers in succession. In the reign of Ethelred, the last of them, an unusually formidable invasion of the Danes occurred. This name was then applied to the inhabitants of Sweden, Denmark, and Norway, who, considering war the noblest pursuit in which man can be employed, were engaged in perpetual hostilities with the nations around them. On this occasion Alfred was his brother's most efficient general, and during the year 871 no less than 9 great battles were fought between the contending parties, in one of which Ethelred received a mortal wound. Alfred was thereupon by the unanimous voice of the people declared king, at the age of 22, and unwillingly entered upon the duties of his perilous office. He succeeded, however, in making a temporary peace with the invaders, which left them free to overrun the other provinces of the island. This truce seems to have lasted till 875. Alfred, meanwhile, finding it impossible to raise an army able to cope with them in the field, fitted out a naval force, with which, on the commencement of hostilities, he worsted them in several engagements, and in the spring of 877, according to Asser, drove 120 Danish ships on shore, causing the destruction of all on board. On the succeeding year they invaded the island in greater numbers than ever, rendering all resistance hopeless; the king, with a few followers, sought safety in the woods and among the hills, and at one time was obliged to take shelter in the hut of one of his cowherds. In May, 878, having been joined by an armed body of his subjects, he attacked the main army of Danes at Eddington, and routed them with great slaughter. It was on the day before this battle that he is reported to have entered the enemy's camp disguised as a harper. The defeated king Godrun and his followers were made to embrace Christianity, and received the modern counties of Norfolk, Suffolk, and Cambridge, as a place of residence. They became the subjects of Alfred, who in the course of 6 years seems to have made himself the virtual ruler of all Eng-

land, though never formally recognized as such. These few years of tranquillity (from 886 to 898) were employed by him in restoring the cities and fortresses which had been destroyed during the war, in improving the navy, in systematizing the laws and internal administration of the government, and in literary labors. The last invasion of the Northmen in his reign, took place in 894, under a leader named Hastings, and after a struggle which lasted 8 years, of which every part of the country was in turn the theatre, they were once more driven out. Alfred is regarded as the founder of the British navy; he made some valuable improvements in the construction of ships, established an elaborate system of coast defences, having erected some 60 fortresses at various points, and regulated the military service so as to keep only one-half the population capable of bearing arms in the field at a time, leaving the remainder to cultivate the soil. It is probable that the code of laws which bears his name is chiefly compiled from the enactments of his predecessors. He made great improvements in the administration of justice, and caused the rights of property to be respected to a remarkable extent for that day. But his efforts for the advancement of literature and for the education of his subjects, constitute his best title to our admiration. Although he is said to have been 12 years of age before he was taught the alphabet, he afterward prosecuted his studies with such diligence as to become possessed of extraordinary learning. He invited literary men to his court from all parts of Europe, and although it is doubtful whether he founded the university of Oxford, according to the prevailing tradition, he certainly did much for the improvement of the monastic school which had previously existed in that place. He made numerous translations from the Latin of works which he considered adapted to the wants of his countrymen, among which are the *Liber Pastoralis Cura* of Pope Gregory the Great, Boethius' *De Consolatione Philosophiæ*, and Bede's "History of England." He married Alswith, the daughter of a Mercian nobleman, by whom he is said to have had 4 sons. His disposition was gentle and amiable, and his bearing frank and affable toward all. He was merciful and forgiving toward his enemies. Through the greater part of his life he suffered intensely from an internal disease, which he bore with stoical serenity, never suffering his labors to be interrupted by its attacks. Many curious incidents of his life have been related by the early annalists, which the critical researches of modern historians have shown to be fabulous.

ALFRETON, a market town in Derbyshire, 140 miles N. N. W. from London; population, 8,326. The inhabitants are employed in manufacturing hosiery and brown earthenware, and in the collieries.

ALGÆ, the common name for sea-weeds and certain kinds of marine cellular plants. Under the term, Linnæus included the lichens and

other plants, as an order of the class *cryptogamia* or *acrogens*; but modern naturalists have modified the classification. Nothing very definite, however, has yet been achieved in the distinctions and minute descriptions of the innumerable varieties of cryptogamic plants or *cellulares*; and marine varieties or sea-weeds have been less observed and analyzed than other species. Professor Agardh, of Sweden, and Professor Harvey, of England, in his work on the British algae, have done much of late, for this department of botanical anatomy and physiology; and from their works we may gather the best views of the present state of knowledge in regard to algae or sea-weeds. The name is now given by botanists to the tribe of plants which comprehend sea-weeds, lavers, and submersed fresh-water species, of similar habits. In structure, form, and size, they vary through a vast variety of intermediate gradations, from the simple microscopic vesicle to branched woody individuals, many fathoms in length. Some of them are microscopic vesicles, only visible to the naked eye when collected in heaps. Such is the nature of green and red slime found in damp walks, at the bottom of shaded walls, and like situations. Others grow together in the beds of the ocean, and when dislodged, rise to the surface and form floating masses of such extent as to impede the course of ships. The sea cat-gut or *chorda filum* of Orkney, is of this kind, and whole meadows of it have been seen, at times, in Scalpa bay. The "gulf weed" of navigators is also of this nature; which gulf weed, says Humboldt, being carried by the gulf stream, forms two banks in the great basin of the northern Atlantic ocean, one of which stretches over 11° of latitude, and the other over 4°. Dr. Lindley, in his "Vegetable Kingdom," attempts to introduce a natural order of division in this class of plants, and forms an alliance which he calls *algales*, embracing the following natural orders: 1, *diatomacea*, or brittle-worts; 2, *confervacea*, or confervas; 3, *fucoacea*, or sea-wracks; 4, *coramiacea*, or rose tangles; 5, *characea*, or charads. The first of these 5 orders include the *desmidea*, which are almost entirely microscopic; and which, until very lately, were hardly recognized as plants at all. Professor Harvey divides these plants into 8 sub-classes, which he terms: 1, *melanospermeæ*; 2, *rhodosperrmeæ*; and 3, *chlorosperrmeæ*. The *melanospermeæ* are marine plants of an olive-green, or olive-brown color, having a monocious or dicious fructification. The spores are olive colored; each enveloped in a pellucid akin, and either simple or separating into 2, 4, or 8 spores. They possess *anthridia*, or transparent, orange-colored, vivacious corpuscles, moving by means of vibratile cilia. The *rhodosperrmeæ* are also, with one or two exceptions, marine plants, and mostly of a rosy red or purple color. The fructification is of two kinds; either of spores in external or immersed conceptacles, or densely aggregated together and dispersed through-

out masses of the frond; or of tetraspores of a red or purple color, external or immersed in the frond, and each enveloped in a pellucid skin, which at maturity separates into 4 sporules. Some possess *antheridia*, which are filled with yellow corpuscles. The *chlorospermeæ* are marine or fresh-water plants of a green color. The fructification is dispersed through all parts of the frond. The spores are green, formed within the cells, and often at maturity having vibratile cilia. They also produce gemmules or external vesicles, containing a dense, dark-colored, granular mass, which finally separates from the frond. The *melanospermeæ* include the following orders: 1, *fucaceæ*; 2, *spirochneæ*; 3, *laminariaceæ*; 4, *dictyotaceæ*; 5, *chordariaceæ*; 6, *ectocarpaceæ*. The first order, which have the genus *fucus* as their type, are all marine plants. They are of an olive brown or greenish color, and very fine in texture. The cellular structure which is characteristic of all the algæ, is very condensed in the *fucaceæ*, assuming a leathery and sometimes even a woody character. The base of their stem or stipes forms a dense shield-like root, while their upper part is often expanded into a broad foliaceous appendage. The reproductive organs consist of small black or very dark spores, which are collected into sori, or found scattered on various parts of the frond. These spores are enveloped in a thick gelatinous mucus, which seems to be a provision for the purpose of attaching them more securely to the rocks on which they grow, amidst the restless element to which they are constantly exposed. They are of very rapid growth; a few months suffice to cover a large surface of naked rock with a sort of forest of various species of fuci. Kelp is manufactured from the species of plant pertaining to this division of the algæ; the one most frequently collected for this purpose being the *fucus vesiculosus*. Great quantities of this sea-weed are thrown upon the shores of the British isles. It is known by its strap-shaped, olive-green, forked divisions, with little yellowish, oval, uneven pods at their points, and by the crackling noise it makes when trodden upon; owing to its stems having a considerable number of air-bladders, by means of which it floats.—Among many of the algæ a gelatinous matter is secreted which is nutritious. In Gotland the *F. vesiculosus* is given as proven-der to hogs, and is called *svins-tang*. Other animals will also eat this weed as food, in times of scarcity. *Alaria esculenta*, when stripped of the thin part, forms a part of the simple fare of the poorer classes of Ireland, Scotland, Iceland, Denmark, and the Faroe Islands.—The *laminariaceæ* or tangles are of a densely fibro-cellular structure, and their spores are collected together in sori on the surface of the frond. *L. esculenta* is an edible species. It grows to the length of 30 feet, and the midrib, stripped of its membranaceous covering, is the part that is eaten. *L. saccharina*, or the sugar sea-belt, is said to be eaten by the Icelanders. In Japan

it is considered a great delicacy. *L. digitata* is eaten in Scotland, and cried about the streets of Edinburgh as "tangle."—The second sub-class, *rhodospereæ*, includes the following natural orders: 1, *laurenciaceæ*; 2, *corallinaceæ*; 3, *delesseriaceæ*; 4, *rhodymeniaceæ*; 5, *cryptonemiaceæ*; 6, *ceramiaceæ*. These orders are distinguished by their brilliant tints, their leaf-like fronds, and the collection of their pores into sori, or if scattered, being arranged on a ternary plan. The "Carrageen moss," or *chondrus crispus*, belongs to the order *cryptonemiaceæ*. It is used in Ireland as an article of food, and is sold in London as a substitute for Iceland moss. It is frequently employed instead of isinglass for the confection of jellies and blanc-mange. It has a slightly bitter flavor, which may be removed by steeping in fresh water some time previous to boiling. *Gelidium* is another genus of the same order; one species of which is said to contain the substance collected by swallows and used in the construction of the edible nests of Java. The edible dulce or *iridea edulis* is a favorite food for lobsters, crabs, &c. It is also eaten both raw and roasted by fishermen; the flavor resembling that of roasted oysters. Amongst the *rhodymeniaceæ* is the genus *gracillaria*, the species of which are also used as food; and one of them, the *G. lichenoides*, is highly valued in Ceylon and other parts of the east. The *G. tenax* is valuable to the Chinese as the basis of an excellent glue or varnish. The quantity annually imported at Canton from the provinces of Fokein and Tohikiang, is stated by Mr. Turner to be about 27,000 lbs. It is sold for 12 or 16 cents per lb., and used as a gum or varnish. Many other uses may possibly be found for sea-weeds and other kinds of cellular plants, when they have been more carefully studied and defined. It was in the ranks of the algæ, to which sea-weeds and the lowest orders of plants inhabiting fresh-water, belong, that those forms and functions were first observed which had been supposed to be peculiar to animals only. Amongst the *oscillatoriæ* it was found that some of them had an apparently distinct power of self-movement; so that locomotion would no longer suffice to distinguish animal from vegetable organisms. In 1848, Unger and Thuret both announced the fact that the spores of many algæ possess vibratile cilia, not to be distinguished from those on animal bodies. The consequence has been that large numbers of the infusoria of Ehrenberg are now regarded as plants, and not as animalcules. The globe animalcule or *volvox globator* endowed with cilia, and possessing the most active powers of motion, has been shown, by the researches of Professor Williamson and Mr. Busk, to be undoubtedly a plant. The presence of starch was also detected by Mr. Busk, during the growth of the young volvox. This explains the apparent anomaly of the supposed lower order of animals performing the same offices as the higher order of plants in absorbing carbonic

acid and liberating oxygen. The moment the volvox is proved to be a cellular vegetable organism, there is no anomaly in its vegetable physiology; and the same may be said of many other minute types of algæ which have been mistaken for animalcules.

ALGARDI, ALESSANDRO, an Italian sculptor, born at Bologna, about the year 1600, died in 1654. His *Fuoga d'Attil*, in St. Peter's church, is the largest alto-rilievo in the world. Other works of his adorn his native city.

ALGAROTTI, FRANCESCO, born at Venice in 1712, died at Pisa, May 8, 1764. After completing his studies, he visited London, Paris, and St. Petersburg. Returning through Germany, he became intimate with Frederic the Great, then crown prince, who after ascending the Prussian throne, persuaded him to take up his abode at Berlin, where he resided for many years, enjoying the friendship of that sovereign. His writings embrace a great variety of topics, but are not of remarkable merit.

ALGAROVILLA, an astringent substance, produced by the tree *juga Maritima*, of Santa Martha, in New Carthage. The portions taken to England, and examined by Dr. Ure, were pods bruised and agglutinated with the extractive exudation of the seeds and husks. It is replete with tannin, and for tanning leather possesses more than four times the strength of good oak bark. It is also well adapted for the manufacture of good black ink, for a yellow dye, and for an astringent medicine.

ALGARVE, a province in the south of Portugal. It contains 2,145 square miles. Population, 141,027. The chief town, Faro, has 8,600 inhabitants. The south-western part of the province is mountainous and rocky, and of wild and dreary aspect. The plains and valleys produce fruits in abundance, which, with wines and fish, form the chief exports. Algarve was wrested from the Moors about the year 1248. It formerly extended across the south of Spain to Almeria, and included part of northern Africa.

ALGAU, a name given, when used in the widest sense of its application, to the district extending from the sources of the Iller to the Danube, and along the Schussen to the lake of Constance. The name is, however, generally applied to a less extensive district in the south-western part of Bavaria, on the borders of the Tyrol, extending along the Iller to Kempten, and thence to Memmingen, and the lake of Constance. The country is very mountainous, especially in its southern portion, containing offshoots of the Alps, some of whose summits rise above the limits of perpetual snow. From the mountains of this district flow the rivers Ill, Argen, Iller, Bregenzerach, Wertach, and Lech. The raising of cattle is the principal occupation of the inhabitants, though agriculture is carried on to some extent in the northern part of the district.

ALGAZI. I. CHACHINI, flourished in the 17th century, and wrote the "Paths of Judgment," printed at Constantinople, 1669. II.

SAMUEL-BEN-ISAAC, a native of Candia, published a chronological work, the "Generations of Adam," in 1687. III. SALOMON-BEN-ABRAHAM, flourished in the 17th century, and wrote commentaries on the Talmud. He was a native of the Levant.

ALGAZZALI, ABU HAMED MOHAMMED, a celebrated Arabian philosopher, born at Tous, a city of Persia, in 1058, died 1111. His father was a dealer in cotton thread (*gazzal*), and it was from this circumstance that he received his name. When he was quite young he lost his father, and was, in consequence, intrusted to the care of a Sooli, or mystical philosopher. Under the influence of this dreamer, Algazzali grew up, became a professor of theology at Bagdad, and attracted hundreds to his lectures by his eloquence and genius. But in spite of his splendid success, he was disturbed by harassing doubts with regard to the certainty of human knowledge, which gave him no rest, and from which the only refuge he could find was in faith. Desiring to attain to the purest state of which man is capable, in which he might have clear views of the true nature of things, and reflecting on the means of reaching this height of progress, he found that, to obtain the desired end, the soul must be purified from all connection with earth, must become indifferent to all outward events, and be freed from all contamination of sensual desires. Considering his own character and life, he found that he was fond of the world, that he was pleased with the approbation of others, and that sensual pleasures were not without attraction to him. This threw him into a melancholy state of mind, and he became seriously ill, his physician assuring him that he must shake off his depression of spirits, or he could not recover. He then distributed his wealth, and sought, in Syria, in solitary communion with himself to attain that ecstatic state for which he longed. He spent some time in this manner, and in travelling, making pilgrimages to Mecca and Jerusalem, and also visiting Alexandria and Cairo. At last he returned to Bagdad, whence he soon after removed to Nissaboor, where he was appointed professor of theology, and where he passed the remainder of his days, sometimes, as he says, experiencing the highest bliss of the ecstatic state, but only occasionally, and for a short time. He was a very prolific writer, but his works were not all considered entirely orthodox by the Mussulmans, and one of them was condemned to be burned on account of some strictures on the Mohammedan law which it contained. His scepticism he got from the Greek philosophers, whose writings he studied with much care, and whose influence he endeavored to counteract in two of his works, one of which, entitled the "Destruction of the Philosophers," was afterward replied to by Averroës. Another of his works obtained so high a reputation among the Mussulmans, that they sometimes said, if all Islam were destroyed it would be but a slight loss provided Algaz-

zali's work on the "Revivification of the Sciences of Religion" were preserved. In this work he gives an account of his doubts and of his examination of the different sects among the Mohammedans, of whom he gives the preference to the Soolis, who claim immediate inspiration, and assert that they can perceive essential truths as men see ordinary phenomena. It is from this work that the above account of his intellectual life is taken. In spite of his philosophy he was a strenuous upholder of Mohammedanism, and was highly esteemed by the faithful, among whom he was styled the Light of Islam, and the Pillar of the Mosque.—(See Lewes's "Biographical History of Philosophy," 2 vols., London, 1857.)

ALGEBRA was formed in the attempt to generalize arithmetic, and has been defined as "the art of computing numbers by general symbols." But this definition is very unsatisfactory, since the investigation of numbers is but one of the uses to which algebra may be applied. If, on the other hand, we omit from this definition the word "numbers," we then make the statement too comprehensive, as our definition will include all the higher branches of mathesis. In algebra, as understood by modern writers, quantities are represented by letters of the alphabet (not by abbreviated words), and the only operations to be performed upon them are the addition of similar quantities, the subtraction of one quantity from another, the multiplication of a quantity any number of times, or its division into any number of parts. In multiplication is included the operation of raising powers, and in division, that of extracting roots. No other operations are considered as properly belonging to algebra, and yet it is of very great advantage to the usefulness of the art, and to the ease of the student, if we add a consideration of the effect, on the result of an operation, produced by gradually enlarging or diminishing the quantity operated upon. These operations are, in all nations, symbolized as follows: The sign = signifies "is equal to," and is the principal verb in algebraic language. Every algebraic sentence must contain it, or its modifications > "is more than," < "is less than." The sign + plus, signifies "added to." Thus, $a+b$ signifies the sum of the two quantities represented by a and b . The sign — minus, signifies "diminished by." Thus, $m-n$, is the remainder left after subtracting n from m . The sign \times signifies "multiplied by." It is sometimes omitted; thus, pg signifies p times g . The sign \div signifies "divided by." The dividend is, however, frequently written in the place of the upper dot, and the divisor in place of the lower dot. The notation of powers and roots is equally simple. Thus, λ^2 signifies the second power of λ , that is, a quantity represented by the number produced by multiplying the number λ by itself, and $\lambda^{\frac{1}{3}}$ signifies the third root of λ , that is, a quantity represented by a number which, multiplied twice by itself, will produce

the number λ . In order to solve a problem by means of algebra, we must first state the problem in as few algebraic sentences as possible. Each sentence will be a statement of the equality of two results of operations on known and unknown quantities. Thus, $x+ax=b$, is the statement that if we multiply by the known number, a , the unknown quantity x , and add x to the product, the sum will equal the known quantity b . The sign = may be called a balance, and the letters on each side are equal in weight. We wish to find the weight of the unknown quantity; in order to do this, we may take any thing from, or add any thing to, the quantity on one scale, provided we make the same change on the other side of the balance. Or, we may divide or multiply the quantity on one side, provided we do the same to the other. Thus by a little ingenuity we can reduce one side to the single unknown quantity, and on the other side of the scale will be its value. When we introduce into algebra the additional idea of a gradual enlargement of any quantity, the letter D is used in the following sense. The sentence $D(ax+b)=a$, is read, "the derivative of a times x plus b is equal to a ." This signifies that the sum of a times x added to b will increase, if x is enlarged, a times as fast as x increases. From these simple principles, various writers have built up vast and valuable structures. The art of algebra arose in the 4th or perhaps the 6th century with Diophantus, was revived in the 16th with Cardan, and Tartaglia, but did not make rapid advances until toward the close of the 16th, and the beginning of the 17th, when Vieta, Harriot, and Descartes put algebra into a condition corresponding with the signal growth of other sciences at that period. The most striking attempt to fix the place of algebra as a science, since the early writers, who called it universal arithmetic, was that of Sir Wm. Rowan Hamilton, of Dublin, who, led by a passage in Kant to consider a science of time possible, endeavored to construct it, and found himself led inevitably to a reconstruction of the elements of algebra. Hence we may infer that the fundamental conceptions in this science are drawn from our sense of time. De Morgan, Comte (translated by Dr. Gillespie of Union college), Patterson of Albany, and Davies of West Point, N. Y., have written on the metaphysics of algebra. For learning the art, there are several excellent American elementary treatises, which may be followed by Bourdon's or Serret's more extended works.

ALGECIRAS, a Spanish town and seaport in Andalusia, province of Cadiz, on the west side of Gibraltar bay, 10 miles N. E. of Tarifa, opposite to and 6 miles W. of Gibraltar, in lat. $36^{\circ} 8' N.$ long. $5^{\circ} 26' 5'' W.$ Charles III. erected Algeciras in 1760, on the capture of Gibraltar by the British. It is constructed of stone, and presents a fair appearance compared with many of the villages in W. Spain. The port is guarded by a battery called the fort de Santi-

ago, has a first-class hospital, and is much frequented. The town is supplied with water conveyed by an aqueduct over the Miel. The principal trade is the export of coal, which is wrought in the neighboring mountains, charcoal, and leather. July 4, 1801, a sanguinary battle between the English and French squadrons was fought here. Resident population, 11,000.

ALGERIA, a division of northern Africa, formerly the Turkish pashalic of Algiers, but since 1830 included in the foreign dominions of France. It is bounded N. by the Mediterranean, E. by Tunisia, W. by Morocco, S. by the Great Sahara. The extreme length is 500 miles from E. to W.; the extreme breadth 200 miles from N. to S. The Atlas ridge constitutes an important physical feature in the country, and divides the arable land of the sea-board from the desert. It also constitutes the northern and southern watershed of the province. The main ridge runs from east to west, but the whole province is intersected in all directions with spurs from the central range. The loftiest of the western mountains is Mount Wanashrees, the Mons Zalacus of Ptolemy; of the eastern the Jurjura and Aurep. These attain a height of nearly 7,000 feet. The principal river is the Shelliff. There are rivers of considerable size also, which flow from the south side of the Atlas, and lose themselves in the desert. None of these rivers are navigable. They are nearly dried up in the summer, but overflow a considerable extent of country in the spring and fertilize the soil.—The climate is not considered unhealthy by some travellers. Ophthalmia and cutaneous diseases are common. It is said there are no endemic fevers, but the great loss of the French troops by disease may perhaps lead to a different conclusion. The atmosphere is pure and bright, the summer very hot; and in the winter severe weather is occasionally experienced, especially in the hill country. On the limits of the desert the soil is arid and sandy, but between the mountain districts it is fertile, and especially so in the neighborhood of the streams. Grain crops of all kinds, fruits, European and tropical; flowers, and particularly roses, of remarkable beauty; and a species of sugar-cane, said to be the largest and most productive of any known species, grow in Algeria. The domestic animals of every variety are numerous. Horses, of course, are excellent; asses are of fine growth and much used for riding. The camel and dromedary of Algeria are very superior. The merino sheep is indigenous, and Spain was first supplied from Algeria. The Numidian lion, the panther and leopard, ostriches, serpents, scorpions, and other venomous reptiles, are abundant.—The Berbers, Kabyles, or Mazidh, for they are known by the three names, are believed to have been the aboriginal inhabitants. Of their history as a race little is known, further than that they once occupied the whole of north-western Africa, and are to be found also on the eastern coast. The

Kabyles live in the mountain district. The other inhabitants are Arabs, the descendants of the Mussulman invaders. Moors, Turks, Kouloughs, Jews, and negroes, and lastly the French, are found in the country. The population in 1852 was 2,078,085, of which 184,115 were Europeans of all nations, beside a military force of 100,000 men. The Kabyles are an industrious race, living in regular villages, excellent cultivators, and working in mines, in metals, and in coarse woollen and cotton factories. They make gunpowder and soap, gather honey and wax, and supply the towns with poultry, fruit, and other provisions. The Arabs follow the habits of their ancestors, leading a nomadic life, and shifting their camps from place to place according as the necessities of pasture or other circumstances compel them. The Moors are probably the least respectable of the inhabitants. Living in the towns, and more luxurious than either the Arabs or Kabyles, they are, from the constant oppression of their Turkish rulers, a timid race, reserving nevertheless their cruelty and vindictiveness, while in moral character they stand very low.—The chief towns of Algeria are Algiers the capital, Constantine, population about 20,000, and Bona, a fortified town on the sea-coast, population about 10,000 in 1847. Near this are the coral fisheries, frequented by the fishers from France and Italy. Boughiah is on the gulf of the same name. The capture of this place was hastened by the outrages of the Kabyles in the neighborhood, who wrecked a French brig by cutting her cable and then plundered her and massacred the crew.—There are some remains of antiquity in the interior, especially in the province of Constantine, among others those of the ancient city of Lambessa; with remains of the city gates, parts of an amphitheatre, and a mausoleum supported by Corinthian pillars. On the coast is Coleah Cherchell, the ancient Julia Cæsarea, a place of some importance to the French. It was the residence of Juba, and in its neighborhood are ancient remains. Oran is a fortified town. It remained in possession of the Spaniards until 1792. Tlemcen, once the residence of Abd-el-Kader, is situated in a fertile country; the ancient city was destroyed by fire in 1670, and the modern town was almost destroyed by the French. It has manufactures of carpets and blankets. South of the Atlas is the Zaab, the ancient Gætulia. The chief place is Biscara; the Biscareens are a peaceful race, much liked in the northern ports as servants and porters.—Algeria has been successively conquered by the Roman, the Vandal, and the Arab. When the Moors were driven from Spain in 1492, Ferdinand sent an expedition against Algiers, and seizing on Oran, Boughiah, and Algiers, he threatened the subjugation of the country. Unable to cope with the powerful invader, Selim Outerni, the emir of the Metidjah, a fertile plain in the neighborhood of Algiers, asked assistance from the Turks, and the celebrated corsair, Barbarossa Horuah, was sent to

his assistance. Hornah appeared in 1516, and having first made himself master of the country and slain Selim Cutemi with his own hand, he attacked the Spaniards, and after a war of varying fortunes, was obliged to throw himself into Tlemcen, where a Spanish army besieged him, and having succeeded in capturing him, put him to death in 1518. His brother, Khair-ed-Deen, succeeded him, sought assistance from the sultan, Selim I., and acknowledged that prince as his sovereign. Selim accordingly appointed him pasha of Algiers, and sent him a body of troops with which he was able to repulse the Spaniards, and eventually to make himself master of the country. His exploits against the Christians in the Mediterranean gained him the dignity of capudan pasha from Solymán I. Charles V. made an attempt to reinstate the Spanish authority, and a powerful expedition of 870 vessels and 80,000 men crossed the Mediterranean in 1541. But a terrible storm and earthquake dispersed the fleet, and cut off all communication between it and the army. Without shelter, and exposed to the harassing attacks of a daring enemy, the troops were compelled to reembark, and make their escape with a loss of 8,000 men, 15 vessels of war, and 140 transports. From this time forward there were unceasing hostilities between the Barbary powers and the knights of Malta; thence sprang that system of piracy which made the Algerine corsairs so terrible in the Mediterranean, and which was so long submitted to by the Christian powers. The English under Blake, the French under Duquesne, the Dutch, and other powers, at various times attacked Algiers; and Duquesne having twice bombarded it, the dey sent for the French consul of Louis XIV., and having learned from him the cost of the bombardment, jeeringly told him that he would himself have burnt down the city for half the money.—The system of privateering was continued in spite of the constant opposition of the European powers; and even the shores of Spain and Italy were sometimes invaded by the desperadoes who carried on this terrible trade of war and plunder. Thousands of Christian slaves constantly languished in captivity in Algiers; and societies of pious men were formed, whose express object was to pass to and from Algiers annually for the purpose of ransoming the prisoners with the funds remitted to their care by relatives. Meanwhile, the authority of the Turkish government had been reduced to a name. The deys were elected by the janizaries, and had declared their independence of the Porte. The last Turkish pasha had been expelled by Dey Ibrahim in 1705; and the janizaries by tumultuous elections appointed new chiefs, whom in their mutinies they often murdered. The janizaries were recruited from the immigrants from Turkey, no native, though the son of a janizary by a woman of the country, being admitted into their ranks. The dey sent occasional presents to Constantinople as a token of his nominal allegiance; but all

regular tribute was withdrawn, and the Turks, hampered by their constant struggles with Russia, were too weak to chastise the rebels of a distant province. It was reserved to the young republic of the United States to point the way to an abolition of the monstrous tyranny. During the wars of the French revolution and of Napoleon, the powerful fleets in the Mediterranean had protected commerce, and the Algerines had been compelled to a respite of their lawless exactions. On the renewal of peace, the Algerines commenced their depredations; and the Americans, who in 1795 had been compelled to follow the example of European nations, and to subsidize the dey for peace, now refused the tribute. In 1815, Commodore Decatur encountered an Algerine squadron, took a frigate and a brig, and sailed into the bay of Algiers, where he forced the dey to surrender all American prisoners, and to abandon all future claims for tribute. This bold example was followed by the English, who, under Lord Exmouth, bombarded the city in 1816, and reduced it to ashes, compelling the dey to surrender his prisoners. This was, however, only a punishment; for piracy was not suppressed, and in 1826 the Algerines openly seized Italian vessels in the Mediterranean, and even carried their incursions into the North sea. In 1818, Hussein Bey succeeded to the government; in 1828, the dwelling of the French consul having been plundered, and various outrages having been committed on vessels under the French flag, reparation was demanded without success. At last the dey of Algiers personally insulted the consul of France, and used expressions disrespectful to the king of France, who had not replied to a letter which the dey had written, in respect of a debt due by the French government to Jew merchants who were indebted to Hussein. To enforce an apology, a French squadron was sent, which blockaded Algiers. Negotiations were opened between France, Mehemet Ali, and the Porte, by which Mehemet Ali, with the assistance of France, undertook to conquer Algiers, and to pay a regular tribute to the sultan, of whom he would hold the government. This was broken off partly from the opposition of England, and partly because Mehemet Ali and France could not agree as to the precise arrangements by which the scheme was to be carried into effect. The government of Charles X. now undertook an expedition against Algiers single-handed, and on June 18, 1830, an army of 88,000 men, and 4,000 horses, disembarked before Algiers, under command of Gen. Bourmont. Hussein Dey had levied an army of 60,000 to oppose them, but having allowed them to land, he could make no effective resistance; and Algiers capitulated July 4, on condition that persons' private property and the religion of the country should be respected, and that the dey and his Turks should retire. The French took possession of the city. Among the spoil, they took 12 ships of war, 1,500

bronze cannon, and nearly \$10,000,000 in specie. They immediately garrisoned Algiers, and established a military regency. The government of Charles X. had intended to surrender Algiers to the sultan, and instructions to that effect were actually on their way to Constantinople, when the events of July, 1830, deposed Charles X. One of the first acts of his successor was to decide on retaining the conquest, and Clausel was sent over as general-in-chief in place of Bourmont. From the first occupation of Algeria by the French to the present time, the unhappy country has been the arena of unceasing bloodshed, rapine, and violence. Each town, large and small, has been conquered in detail at an immense sacrifice of life. The Arab and Kabyle tribes, to whom independence is precious, and hatred of foreign domination a principle dearer than life itself, have been crushed and broken by the terrible razzias in which dwellings and property are burnt and destroyed, standing crops cut down, and the miserable wretches who remain massacred, or subjected to all the horrors of lust and brutality. This barbarous system of warfare has been persisted in by the French against all the dictates of humanity, civilization, and Christianity. It is alleged in extenuation, that the Kabyles are ferocious, addicted to murder, torturing their prisoners, and that with savages lenity is a mistake. The policy of a civilized government resorting to the *lex talionis* may well be doubted. And judging of the tree by its fruits, after an expenditure of probably \$100,000,000, and a sacrifice of hundreds of thousands of lives, all that can be said of Algeria is that it is a school of war for French generals and soldiers, in which all the French officers who won laurels in the Crimean war received their military training and education. As an attempt at colonization, the numbers of Europeans compared with the natives show its present almost total failure; and this in one of the most fertile countries of the world, the ancient granary of Italy, within 20 hours of France, where security of life and property alike from military friends and savage enemies alone are wanted. Whether the failure is attributable to an inherent defect in the French character, which unfits them for emigration, or to injudicious local administration, it is not within our province to discuss. Every important town, Constantine, Bona, Bougiah, Arzew, Mortaganem, Tlemcen, was carried by storm with all the accompanying horrors. The natives submitted with an ill grace to their Turkish rulers, who had at least the merit of being co-religionists; but they found no advantage in the so-called civilization of the new government, against which, beside, they had all the repugnance of religious fanaticism. Each governor came but to renew the severities of his predecessor; proclamations announced the most gracious intentions, but the army of occupation, the military movements, the terrible cruelties practised on both sides, all refuted the profes-

sions of peace and good-will. In 1831, Baron Pichon had been appointed civil intendant, and he endeavored to organize a system of civil administration which should move with the military government, but the check which his measures would have placed on the governor-in-chief offended Savary, duc de Rovigo, Napoleon's ancient minister of police, and on his representation Pichon was recalled. Under Savary, Algeria was made the exile of all those whose political or social misconduct had brought them under the lash of the law; and a foreign legion, the soldiers of which were forbidden to enter the cities, was introduced into Algeria. In 1833, a petition was presented to the chamber of deputies, stating, "for 8 years we have suffered every possible act of injustice. Whenever complaints are preferred to the authorities, they are only answered by new atrocities, particularly directed against those by whom the complaints were brought forward. On that account no one dares to move, for which reason there are no signatures to this petition. O my lords, we beseech you in the name of humanity, to relieve us from this crushing tyranny: to ransom us from the bonds of slavery. If the land is to be under martial law, if there is to be no civil power, we are undone; there will never be peace for us." This petition led to a commission of inquiry, the consequence of which was the establishment of a civil administration. After the death of Savary, under the ad interim rule of Gen. Voirol, some measures had been commenced calculated to allay the irritation; the draining of swamps, the improvement of the roads, the organization of a native militia. This, however, was abandoned on the return of Marshal Clausel, under whom a first and most unfortunate expedition against Constantine was undertaken. His government was so unsatisfactory, that a petition praying inquiry into its abuses, signed by 54 leading persons connected with the province, was forwarded to Paris in 1836. This led eventually to Clausel's resignation. The whole of Louis Philippe's reign was occupied in attempts at colonization, which only resulted in land-jobbing operations; in military colonization, which was useless, as the cultivators were not safe away from the guns of their own block-houses; in attempts to settle the eastern part of Algeria, and to drive out Abd-el-Kader from Oran and the west. The fall of that restless and intrepid chieftain so far pacified the country, that the great tribe of the Hamianes Garabas sent in their submission at once. On the revolution of 1848, Gen. Cavaignac was appointed to supersede the Duke d'Aumale in the governorship of the province, and he and the Prince de Joinville, who was also in Algeria, then retired. But the republic did not seem more fortunate than the monarchy in the administration of this province. Several governors succeeded each other during its brief existence. Colonists were sent out to till the lands, but they died off, or quitted in disgust. In 1849,

Gen. Pelissier marched against several tribes, and the villages of the Beni Sillem; their crops and all accessible property were burnt and destroyed as usual, because they refused tribute. In Zaab, a fertile district on the edge of the desert, great excitement having arisen in consequence of the preaching of a marabout, an expedition was despatched against them 1,200 strong, which they succeeded in defeating; and it was found that the revolt was wide-spread, and fomented by secret associations called the Sidi Abderrahman, whose principal object was the extirpation of the French. The rebels were not put down until an expedition under Generals Canrobert and Herbillon had been sent against them; and the siege of Zoatcha, an Arab town, proved that the natives had neither lost courage nor contracted affection for their invaders. The town resisted the efforts of the besiegers for 51 days, and was taken by storm at last. Little Kabylia did not give in its surrender till 1851, when Gen. St. Arnaud subdued it, and thereby established a line of communication between Philippeville and Constantine. The French bulletins and French papers abound in statements of the peace and prosperity of Algeria. These are, however, a tribute to national vanity. The country is even now as unsettled in the interior as ever. The French supremacy is perfectly illusory, except on the coast and near the towns. The tribes still assert their independence and detestation of the French regime, and the atrocious system of razzias has not been abandoned; for in the year 1857 a successful razzia was made by Marshal Randon on the villages and dwelling-places of the hitherto unsubdued Kabyles, in order to add their territory to the French dominions. The natives are still ruled with a rod of iron, and continual outbreaks show the uncertain tenure of the French occupation, and the hollowness of peace maintained by such means. Indeed, a trial which took place at Oran in August, 1857, in which Captain Doineau, the head of the *Bureau Arabe*, was proved guilty of murdering a prominent and wealthy native, revealed a habitual exercise of the most cruel and despotic power on the part of the French officials, even of subordinate rank, which justly attracted the attention of the world. At present, the government is divided into the three provinces of Constantine on the east, Algiers in the centre, and Oran in the west. The country is under the control of a governor-general, who is also commander-in-chief, assisted by a secretary and civil intendant, and a council composed of the director of the interior, the naval commandant, the military intendant, and attorney-general, whose business is to confirm the acts of the governor. The *conseil des contentieux* at Algiers takes cognizance of civil and criminal offences. The provinces where a civil administration has been organized have mayors, justices, and commissioners of police. The native tribes living under the Mohammedan religion still have their *cadis*: but between them a system of arbitra-

tion has been established, which they are said to prefer, and an officer (*l'avocat des Arabes*) is specially charged with the duty of defending Arab interests before the French tribunals.— Since the French occupation, it is stated that commerce has considerably increased. The imports are valued at about \$22,000,000, the exports, \$3,000,000. The imports are cotton, woollen, and silk goods, grain and flour, lime, and refined sugar; the exports are rough coral, skins, wheat, oil, and wool, with other small matters.

ALGHALIB-BILLAH, or THE CONQUEROR FOR THE CAUSE OF GOD, also called ALAHMAR, the surname of Mohammed-ben-Yussuf, the first Moorish king of Granada, in Spain. He was born in A. D. 1195, and died in 1278. When the provinces of Spain threw off the yoke of the Almohades, he succeeded in establishing himself as sultan of Mohammedan Spain, and made Granada his capital. He lived on friendly terms with the king of Castile. The resources of his kingdom were developed under his fostering care. He commenced the famous palace of the Alhambra.

ALGHERO, a strongly fortified seaport town, in the province of the same name, on the western coast of the island of Sardinia. Population 7,000. It was a favorite residence of Charles V. The coral found here is the finest obtained in any part of the Mediterranean.

ALGHISI. I. FRANCESCO, a musical composer of Brescia, born in 1666, died in 1733. While residing at Venice, he composed two operas, which met with great success. He became a rigid ascetic in his old age, and was esteemed a saint. II. GALEAZZO, a famous architect, in the 16th century, born at Carpi, in Modena. He designed a very fine building as a residence for the duke of Ferrara. He wrote the best treatise on military architecture that had then appeared. III. TOMASSO, a skilful surgeon, born at Florence in 1669, died in 1713. His work on lithotomy, in which branch of surgery he excelled, was published in 1707. He held the professorship of surgery in the university at Florence.

ALGIERS (Arab, *Al-Jezair*, the islands), a seaport and city of north Africa, in lat. 36° 47' N. and long. 8° 4' E. It was formerly the capital of a pashalic of the same name, and dependent on the Ottoman empire, but since 1831 has been the capital of the French colonial province of Algeria. It is built in the form of an amphitheatre, on the northern slope of Mount Boujarin, which rises 500 feet above the bay, and as seen from a distance presents a very imposing and picturesque appearance, which is heightened by the dazzling whiteness of its houses. It is strongly fortified, being wholly enclosed by a wall 80 feet high and 12 feet thick, and furnished with battlements, castles, and batteries. The streets of Algiers, as of all Moorish towns, are narrow, tortuous, and dirty, but great improvements have recently been made by the construction of wide thoroughfares and squares, and Algiers promises

soon to be one of the handsomest cities on the Mediterranean. It is daily assuming a more European aspect, turbans being exchanged for hats, long pipes yielding to cigars, and the old Moorish bazaars being displaced by the glazed windows of French shops. The houses are annually whitewashed, and in consequence of earthquakes are seldom built more than one story above the basement. Among the public buildings are 10 large mosques, several synagogues, a handsome cathedral, some Roman Catholic churches, 1 Protestant chapel, 6 colleges, a government house, exchange, bishop's palace, and public library. The kasbah, or old citadel, is itself a little town, containing not only the palace of the late dey, but several other houses, and gardens adorned with sycamores and banana trees, and courts with elegant fountains, surrounded by arched galleries. The harbor of Algiers has coast immense labor. It was first formed by Barbarossa in 1580, and has a mole 580 feet in length and 140 in width, extending from the mainland to an islet. It as yet secures to ships but an imperfect protection during severe north winds, but a breakwater, which is to be 2,400 feet long, and was commenced in 1886, will, when completed, make the port entirely safe. The commerce of Algiers is of great importance, it having become the entrepot of four-fifths of the trade with France, with other European countries, and with other towns of the province. Steam vessels start for this port from Toulon and Marseilles 8 times each month, and the passage is made in 48 or 50 hours. Algiers is the healthiest city in the colony. It is thought to be built upon the site of the ancient Icosium, and during the succeeding centuries has been held by the various occupants of the country, by Vandals, Moors, Spaniards, corsairs, and more recently by the French. It has a population of 94,600, of whom 45,000 are Europeans, and the rest natives or Jews.

ALGOA BAY, lies in Cape Colony, South Africa, about 425 miles east of the Cape of Good Hope. The anchorage is good. It is also known as Port Elizabeth.

ALGONQUINS, a family of American Indian tribes, distinguished by a common language and by similar traditions and customs, who at the time of the landing of the pilgrims were scattered over more than half the territory E. of the Mississippi and S. of the St. Lawrence, and constituted about one-half of the population of that vast region. They occupied mainly, though not exclusively, an extent of 60 degrees of longitude and more than 20 degrees of latitude. They encircled the Hurons who dwelt around lakes Huron, Erie, and Ontario, and embraced the powerful tribes of the Abenakis, Narragansets, Pequods, and Mohegans of the north-east, the Lenni-Lenapes, Powhatans, Coreas, Shawnees, and Illinois of the south and south-west, and the Ottawas, Menomones, Sacs and Foxes, and Chippewas of the north-west. Much uncertainty must attend

any estimate of their original number, but the population of the various tribes was probably not less than 90,000. The present number of the Algonquins is about 18,000; the Chippewas, the principal tribe, amounting to nearly 10,000.

ALGUAZIL, in Spain, an inferior officer of the law, answering to a constable or bailiff. He is bound to execute the process of the king; to arrest persons guilty of malfeasance; and even to execute criminals; although in practice this unpleasant duty is performed by an executioner called *verdugo*. The alguazils are appointed by the judges; the *alguazil* mayor or head constable by the town council, of which he is *ex officio* a member.

ALHAKEM-IBN-ATTA, surnamed *MOKANNA*, the one-eyed. He was a Mohammedan impostor, who appeared in the capital of Khorassan, A. D. 774, where he announced himself as the son of God. He was skilled in natural science, and produced various effects by which he imposed on the multitude. The caliph Mahdi despatched troops against him, and on finding himself at the last extremity, he set fire to the fortress and made such arrangements that his body was consumed and no traces of it left; whereby the delusion of his immortal nature has been kept up among some Mohammedans to this day. His career furnished the subject for Moore's poem of "The Veiled Prophet."

ALHAMA, the name of various towns in Spain, who appeared in the capital of Khorassan, A. D. 774, where he announced himself as the son of God. He was skilled in natural science, and produced various effects by which he imposed on the multitude. The caliph Mahdi despatched troops against him, and on finding himself at the last extremity, he set fire to the fortress and made such arrangements that his body was consumed and no traces of it left; whereby the delusion of his immortal nature has been kept up among some Mohammedans to this day. His career furnished the subject for Moore's poem of "The Veiled Prophet."

ALHAMBRA, a suburb of Granada fortified in the strongest manner known to the middle ages, capable of containing 40,000 men, and enclosing a large palace of the emperor Charles V. The exquisite remains of a Moorish palace, whose beauties have been celebrated by all travellers, and admirably illustrated by the pen of Washington Irving, constitute the special attraction of the place. Situated in the midst of noble woods, whose shady avenues keep off the noonday heat, surrounded with delicious gardens, and built with the most lavish sumptuousness and yet with the most perfect taste, this beautiful spot contained every thing that could contribute to the security and gratification of the Granadan princes. The Hall of Lions is the grand apartment of the palace; it is so called from a splendid fountain supported by lions, and is entirely constructed of marble and alabaster, and ornamented with the most delicate fretwork and arabesques. The Sala de Comares is, however, still more beautiful. The ceiling is of cedar wood, inlaid with mother of pearl, ivory, and silver; and the walls are stuccoed and ornamented with arabesques of the most elegant and intricate design. The colors still

retain their brilliancy, and the delicate filigree and tracery are in perfect order, after a lapse of 500 years. The palace is under the charge of a governor and a number of invalid soldiers. The Alhambra style is commemorated by a particular court in the crystal palace at Sydenham; and Mr. Owen Jones has published a work richly illustrated on the ornamentation and architecture of the Alhambra.

ALHAZEN, or ALHASSAN, an Arabian mechanician of the 11th century. He wrote several mathematical works; among them a treatise on optics, translated into Latin, and printed at Basel under the title of *Optica Theorica*, 1572. He believed that he could regulate by machinery the inundations of the Nile; and was sent for by the caliph Alhakem to carry out his schemes. A residence in Egypt convinced him of the fallacy of his ideas, and to escape the caliph's wrath he feigned insanity until that monarch's death. He died in Cairo A. D. 1038.

ALHONDEGA, famous in Mexican history as the spot of the first collision between the patriots and the mother country. After the priest Hidalgo had taken up arms, he first endeavored to attack Guanajuato, the capital of the province of that name, against which he marched, Sept. 28, 1810. Rianon did not attempt to defend the city himself, but shut himself up with the Spanish troops and old Spaniards in the Alhondega or granary, a strong work in the suburbs of the city. The Spaniards were well armed, and the troops of Hidalgo, except the two Creole regiments of La Reyna and Celaya, were equipped with slings, bows, pikes, *machetes*, or cane-knives, and clubs. The Indians assaulted the place with great gallantry, charging up to the Spanish artillery, which they sought to muzzle with their hate and blankets. On the other hand, the Spanish fire did fearful execution, until at last the guns being without balls, shells were improvised, by filling with powder the iron flasks in which quicksilver was brought from Spain, and firing them among the assailants. It has also been said that bags of dollars were used instead of grape-shot by the desperate defenders. At last Rianon was killed, the works were carried by storm, and the whole garrison was massacred. The number of victims is estimated at 2,000, one family alone having lost 17 members. The battle terminated on Friday night, and on Saturday morning not a Spaniard was alive in the city, and the very houses they had occupied were destroyed. Hidalgo got possession of a number of guns, and in the treasury, which Rianon had taken with him, were \$5,000,000 in dollars, beside bullion. The capture of the Alhondega produced dismay in the city of Mexico, Guanajuato being the depot of one of the mining districts. The capital itself would have been taken had Hidalgo followed Allende's advice and marched at once upon it.

ALI Bsa, died 1675. He was dragoman to the sultan Mohammed IV. He was born in Po-

land, and, having been taken prisoner, was educated in the seraglio. It is said that he was well versed in seventeen languages. Among other works, he wrote memoirs on the liturgies of the Turks and their pilgrimages, translated by Hyde, and published with notes, Oxford, 1691. He translated the Bible into Turkish, the MS. of which is at Leyden.

ALI BEN ABU TALIB, Mohammedan caliph, 655-661. He is believed to have been the first who embraced the doctrines of Mohammed, whose blood relative he was, and by whom he had been adopted and brought up. By his marriage to the prophet's daughter, Fatima, he acquired another tie with his great master. At Mohammed's death without male issue, he had claims as next of kin to the throne. But he deferred, although unwillingly, to those of Mohammed's friends and supporters, Abubekr, Omar, and Othman, who had been elected by the Moslems, and were supported by Ayesha, the prophet's widow. It was not until after the assassination of Othman that he assumed the sovereign power. The debatable question of his right to the succession is a distinctive article of faith, and divides the Mohammedan world into the two great sects of Soonees and Shiites; the former denying Ali's right, the latter affirming it. The Turks are generally Soonees, and the Persians embrace the cause of Ali; and this religious dogma has embittered the rivalry of the two nations. Ali's first act of power was the suppression of a rebellion fomented by other pretenders to the crown who were abetted by Ayesha, the prophet's wife, an intriguing woman, and Ali's inveterate enemy. The rebels Zobeir and Talha were defeated and slain, and Ayesha was taken prisoner. A new opponent soon arose in Moawiyah, who succeeded in establishing himself in Damascus, and even carried the war into Ali's own territories, and seized the two holy cities. At the same time his lieutenant Amrou seized on Egypt. Three fanatics, having determined on ridding the world of both pretenders, succeeded in killing Ali, but failed in their attempt on the life of Moawiyah. Ali left three sons, one of whom, Hassan, succeeded him for a short time.

ALI BEY, a Mameluke slave, born 1728, died 1773, who, by the favor of his master, Ibrahim Bey, rose to wealth and importance in Egypt, and became one of the Mameluke beys. In 1766 he appeared in Cairo, and having secured himself adherents, he slaughtered the other beys and assumed the government. The Porte, then occupied with war against Russia, left him uncontrolled. His idea, derived from intercourse with Europeans, was the restoration of the Egyptian kingdom. He formed an alliance with Daher, pasha of St. Jean d'Acre, and they immediately seized on Mecca and sent a fleet into the Red sea. In 1770 they overran Syria, and Daher and Mohammed, his general, having routed the Turkish army, were on the point of rendering themselves masters of Damascus, when Mohammed, either alarmed for himself

or gained over by the Turks, precipitately quitted the army and returning to Egypt, engaged in a war against Ali, who fled. He was afterward taken by Murad Bey and killed.

ALI PASHA, an Albanian chieftain, born 1744, died Feb. 1822. He was descended from an ancient Albanian family, which had for generations held the town and territory of Tepeleni as a fief from the pasha of Berat. The Albanian chiefs live in a state of perpetual warfare with each other; and Ali's family having lost a considerable portion of their hereditary property, he was born to a feud. His natural disposition by no means disqualified him for the necessities of his position, for from an early age he had associated himself with the klephts or professional brigands of his native country, and in after life often spoke of his having depended on deeds of violence for his subsistence. He soon exhibited considerable address and bravery in the predatory incursions he kept up against his neighbors; but the utter absence of funds prevented him from attempting any thing like a systematic plan of warfare. He could not even defend his own stronghold; for the inhabitants of Gardiki, his principal enemies, at one time captured Tepeleni and took his mother and sister prisoners, whom they detained for a month, subjecting them to the last outrages; for which Ali in the days of his power exacted a terrible reparation, not only on the perpetrators of the injury, but on their friends and relatives. It is narrated that one day, sitting under the ruins of a convent musing on his desperate fortunes, he struck a stick vehemently on the ground, and its hollow echo having caught his attention, he dug it up and discovered a sum of money which at once enabled him to hire a force sufficient to turn the tables on his foes. By boldly putting himself in the power of the weaker of his enemies, he was enabled so to influence them by his representations, that he sowed dissension among them, took the command of part of the force which had come out against him, and defeated the remainder. The recovery of his succession did not, however, amend his habits of brigandage. His klephts only became more numerous and powerful than before, and at length his superior, the pasha of Berat, undertook to put him down, and succeeded in defeating his men and capturing himself. His own address, however, and the favor of the pasha's daughter, saved him, and he was dismissed unharmed. His subsequent alliance with the pasha of Yanina, and the extent of his depredations, drew upon him the notice of the Porte, who, in consequence of the complaints made, ordered the derwend pasha, or chief of the public highways, to clear the roads, and to put an end to Ali Pasha and his troop. But the pasha of Berat himself happening to be the functionary charged with the execution of this command, it had no further issue than the enlistment of Ali and his followers in the personal service of the pasha of Berat. This

was the commencement of a more regular career, and he next transferred himself to the service of the pasha of Negropont, whence he retired to Tepeleni, and married Emyneh, daughter of the pasha of Delvino. This pasha was put to death by the Porte, and his successor married Shynitza, the sister of Ali; an event which greatly increased his political importance and wealth. By a succession of intrigues he acquired supporters among the chief officers of the supreme government, and he procured for himself the appointment of sub-inspector of highways in Roumelia, in which post, however, he favored the disorders which it was his duty to suppress; he compounded with robbers for a share of the booty, and his superior, who was implicated in his misdeeds, was recalled and beheaded, while Ali himself by timely presents at Constantinople averted a similar fate. During the wars of 1787, and the succeeding years, between the Porte and Russia and Austria, Ali Pasha, though keeping up a treasonable correspondence with the Russians, rendered good service to Turkey, from whose weakness and disunion he saw he had most to gain. He obtained the appointment of derwend pasha, with peremptory orders to suppress all brigandage. Levying a strong force Ali soon carried out his instructions, and having cleared the roads turned his arms toward other projects. Making war on the neighboring pasha of Yanina, he concocted a forged order from the Porte directing him to occupy that city, and occupied that pashalik, the subordinate beys of which were in a state of open revolt. Here he got up a petition from the principal inhabitants of the town, which he forced them to sign and transmitted to the Porte. His public services, and still more, his judicious bribes, procured him the pashalik. And although the fraud was subsequently known at Constantinople, the energy of his government and the comparative order of his province, in which he himself was the only robber, made him respected, and his appointment was not disturbed. Ali Pasha probably had some general idea of consolidating Greece into a separate kingdom; for by force or fraud, or both, he extended his dominion over the greater part of northern Greece. The Venetian territories on the coast of western Greece, which by treaties with the Porte, had been secured to Venice, were seized by Ali Pasha, so soon as the French republican army occupied them. He opened a negotiation with Napoleon for his support, in case the French expedition against Turkey should succeed, and Napoleon sent M. de Pouqueville to Yanina; but on the defeat of the French cause in Egypt, Ali Pasha adhered as usual to the cause from which he had most to gain, and assisted in driving out the French from Preveza and Parga. He also carried on a war of extermination against the Souliotes, a Christian population which resided in the mountains not far from Gardiki, and who had maintained their independence against the various chiefs. By

his accustomed combination of treachery and arms, Ali Pasha managed, after a desperate resistance, to subdue them, accompanying his success with circumstances of revolting cruelty and barbarism. During these various incidents of his career, he still continued to keep up a show of allegiance to the Porte. His schemes of aggrandizement were perfectly notorious to the government, but the system of subsidy in which he kept many of the leading statesmen, prevented the question of his usurpations from coming to open discussion. He was in advanced years before he had attained the summit of his power, and unlike Mehemet Ali, he never openly set the power of the Porte at defiance. This cautious policy was at last forgotten. Ismael Pasha Bey, a former confidant of Ali, held an appointment in the seraglio at Constantinople. Ali Pasha, either from motives of revenge, or from fear of unwelcome disclosures, hired assassins to kill him. The attempt having been made unsuccessfully, the assassins were seized, and made a full confession. The insult to the sovereigns accomplished what political reasons had failed to do, Ali Pasha was now outlawed. An army marched against him, which he repulsed; but in 1821, Koorshid Pasha laid siege to Yanina, and forced Ali to retire to a stronghold which he had on the lake, and in which he kept his treasures and his magazine. Here he shut himself up, and refusing to surrender, threatened to blow himself up unless he received an amnesty. The cupidity of the Turks being aroused by the amounts of his vast treasure, it became important to secure the place. The incidents of his closing scene are variously narrated. But the general facts are that he was deluded by a pretended firman of pardon into a personal interview with Koorshid Pasha, in which he was attended by a small body of his officers. In this interview the sultan's commands for his decapitation were made known, on which Ali Pasha immediately fired at his enemies, and killed or wounded some, but was himself shot dead, his head cut off and sent to Constantinople. Ali Pasha's two sons, Veli and Muchtar Pasha, men of considerable ability, who had entered the service of the Porte, suffered the fate of their father on suspicion of being implicated in the Greek conspiracies. Ali has been usually characterized as a man of extraordinary powers and abilities. In a primitive state of society, however, daring courage and unscrupulous duplicity always command a certain share of success, and fortunate circumstances having given the initiative to his career, the possession of such qualities could scarcely fail of achieving comparative greatness. Had his abilities and forecast really been those of a statesman, the fabric of his power would not have melted away so rapidly, or he would, at least, have left some enduring impress on his country's institutions.

ALIABAD, a village of Persia, containing about 500 houses in the province of Irak-Ajemees. A palace built by Shah-Abbas is in its vicinity.

ALIAS (Lat. otherwise), in law, a second name. Where a party sues or is sued, generally the latter, by two names, he is described as George Brown *alias* William Smith. Some fine-drawn arguments were once extant as to the possibility of a man's having a second name. But in modern times, with the facilities of amending, wisely favored in judicial proceedings, the name of the individual is less important, provided the actual party is before the court. In an indictment for murder, the name of the deceased is obviously of the very highest importance, the whole question turning on the identification as well of the murdered as of the murderer.

ALASKA, or ALIASHKA, in Russian America, a peninsula extending eastward into the north Pacific, between lat. 50° and 55° N. and long. 155° E.; it is covered with volcanoes, some of which are active, and is barren and uninhabited.

ALIBAUD, Louis, notorious for his attempt to murder Louis Philippe, born at Nismes, 1810, died on the scaffold July 11, 1836. In his 18th year he entered the army as a volunteer. During the July revolution in Paris he went over to the popular side, but took no active part in the struggle, although he received a severe wound in an engagement. Falling into disgrace, he retired from the service in 1834, and resided for a time at Perpignan and Barcelona. Seized with a fanatical desire for the death of the king, he resolved to satisfy it, and returned to Paris. He made an unsuccessful attempt June 25, 1836. Being instantly seized by the soldiery, his only regret was that he had failed in his endeavor. After a speedy trial, he was condemned to die by the guillotine.

ALIBERT, JEAN LOUIS, baron, a celebrated French physician, born at Villefranche in 1775. He studied medicine in the city of Paris. The success of his first work on intermittent fevers was the means of gaining him the position of professor in the medical faculty. He afterward became physician in chief in the St. Louis Hospital, and in 1818 body physician to Louis XVIII. The attention which he bestowed upon this monarch in his last illness was rewarded by Charles X. with a baronetcy.

ALIBI (Lat. elsewhere). When a defendant is charged with committing an offence, and he can show his absence from the particular place at the time, he is said to prove an alibi. It is a line of defence held in little favor by the courts, as one easily supported by perjury. In the days of notorious public depredators, it was a frequent device to gallop on a fleet horse straight across the country, and, by appearing before credible witnesses soon after an exploit, thereby to acquire the means of setting up an alibi.

ALICANTE, the principal port of Valencia, and capital of the province of that name, is situated on the eastern coast of Spain, in 38° 22' N. lat.; 0° 25' W. long. Population, 21,000. The commerce was formerly extensive, but has

been almost ruined by the prohibitive duties of the last tariff. The chief exports are raisins, almonds, olive-oil, and barilla. It is the seat of a bishop, and has a cathedral. The population of the province is 368,219.

ALICATA, a seaport on the south coast of Sicily, in the province of Girgenti. Population, 13,465. It exports corn and sulphur in considerable quantities. The harbor is a mile from the town. The ruins of ancient Gela are a few miles distant.

ALICONDA, an African tree, which attains a great size, and serves a variety of uses. The fibres of the bark make a coarse thread, the rind and small leaves are used for food, the large leaves as roofing for huts, and their ashes to make soap.

ALICUDI, one of the Lipari islands. It is of conical form, with precipitous sides. Population about 1,000. Its circumference is about 6 miles. The summit is the crater of an extinct volcano. Though the soil is of poor quality, it is carefully cultivated.

ALIEN (Lat. *alienus*), is a foreign-born resident of a country, in which he does not possess the rights and privileges of citizenship. To be an alien, a person must have been born under circumstances that give the government, under which he resides, no claim to his allegiance. Alienage is determined at birth. Hence, the children of aliens, if born within the jurisdiction, are citizens; while the native subjects of a foreign country, as was settled in the great case of the *post nati*, decided soon after the union of Scotland and England, are still aliens as regards the country in which theirs is merged by annexation, while those born subsequently to annexation are natives. Children of public ministers abroad, where both parents are citizens, have never been considered aliens; and by recent English statutes, all children born abroad, where the mother only is British, are entitled to the right of acquiring land by purchase or succession; and, where the father only is British, to all the rights and privileges of natives. In the United States, a temporary statutory provision to a similar effect with that last mentioned, was enacted in 1802, and was made perpetual in 1854. With reference to the right of a citizen to renounce his allegiance and thus make himself an alien, as regards the land of his birth, different opinions are held. The political tie between the subject and the sovereign power is regarded by some as absolutely indestructible; by others as in the nature of a civil contract, dissoluble by mutual consent alone; and by others still as an obligation from which either party may permanently release himself at pleasure. This matter was somewhat discussed in the recent (1853) correspondence relative to the extradition of Martin Koszta, between Mr. Hülsemann, Austrian chargé d'affaires, and Secretary Marcy. "The laws of his country," says the former, "are opposed to Koszta's breaking asunder of his own accord and without having obtained permission to ex-

patriate himself from the authorities of that country, the ties of nationality which bind him to it"—a statement apparently in conformity with the second of the above views. But Mr. Marcy states the third to be "the sounder and more prevalent doctrine," and speaks of the right to withdraw, under certain circumstances, as "similar in principle to the right which legitimates resistance to tyranny." This position would seem to find countenance in several works on public and international law, and in the language of some of our state constitutions. But the English common law holds that the allegiance of natural born subjects is intrinsic and perpetual, and not to be divested by any act of their own; and the weight of authority in the American courts, and, until the Koszta letter, in the language and action of the federal government, had been in favor of the doctrine that a citizen cannot renounce his allegiance to the United States, unless authorized so to do by congress, which has, as yet, taken no action in this direction. In 1857, however, Mr. Attorney General Black, in a case presented to the federal executive, gave it as the official opinion of the United States government, that a naturalized citizen may renounce his allegiance to the United States, and resume his previous relation to the country of which he is a native. A citizen may, by the usage of all civilized countries, acquire a foreign domicile, whereby, without losing his allegiance to the country of his birth, he receives a new national character for commercial purposes, but is subject to recall by the home government and to the penalties of treason in case of refusal or of lending aid to an enemy. The often-stated doctrine that the manner in which aliens are treated is a criterion of civilization is true, with exceptions and limitations, having regard to the difference between one age or nation and another. As Athens became more powerful and enlightened, she encouraged the immigration of foreigners, especially of merchants, but always placed citizenship beyond the reach of any but the most eminent persons. During the palmy days of Rome, the rights of citizenship were conferred upon few; but after her decline had commenced, Caracalla gave the freedom of the city to the whole Roman world. In Athens, foreigners could not make a will, and their property, after death, was appropriated to the public use. Such was also the case in republican Rome, except that the patron sometimes took possession by the *jus applicationis*; but, under the imperial code, aliens could both will and inherit property. During the middle ages, great jealousy was felt of foreigners—those being often considered and treated as such who were born under the same sovereign, but in another district from that in which they settled. They were reduced to the condition of serfs in some places by law, and the sovereign had the legal right, by the *droit d'aubaine*, which was often usurped by the feudal lords, of inheriting all the property, both real and personal, of strangers who died with-

out native heirs. In several European countries, the *droit d'aubaine* still survives, if not in full force, in the milder form of the *droit de détraction*, the right to deduct for the use of the state a certain proportion of the effects of one who dies without native heirs. This is, however, by the operation of treaties with several nations, abrogated in favor of their citizens, as regards personal property. In France, the *droit d'aubaine*, which had been renounced in respect to persons dying in various commercial cities, often before, was abolished by the constituent assembly in 1791, reestablished by the code of Napoleon, and finally swept away in 1819, since which time aliens have been at liberty to acquire, enjoy, and transmit property of all descriptions, as if they were citizens; but they enjoy no civic or political rights unless specifically granted by the government of France, or by the provisions of a treaty with their own government. In England and America, aliens could always freely acquire, hold, and transmit personal estate, but could have, until recently, no property in real estate as against the state—the distinction dating back to the times of feudalism, when to hold land implied an obligation to perform services, such as only a subject could perform. It is said in the old books that real property, which descends to or from an alien, escheats at once, while that purchased by or devised to him does not vest in the state until “office found,” in the barbarous law language, i. e., until the fact of alienage shall have been proven before the proper officer. But in modern times, the state rarely asserts the right of escheat in the former class of cases, or directs an inquest of office to be held in the latter. Even where the rule of the old common law exists, it is, in point of fact, little more than a rod in *terrorum* over the heads of resident foreigners. On this account, but few incidental questions growing out of the general doctrine have been put in controversy so as to be definitively settled by judicial decision. Some have supposed, for example, that an alien might, to all intents and purposes, hold and transmit real estate, by taking title in the name of a trustee; but, according to the better opinion, such is not the law. The fact that this harsh rule of the common law had become gradually almost obsolete, is perhaps the main reason why legislation upon the subject has been so tardy, an auxiliary reason probably being the frequently exercised legislative power to pass private acts, remedying the evil in special cases. Within the last 25 or 30 years, however, many statutes, more or less remedial, have been enacted. By an act passed in 1844, “alien friends in England take, hold, and transmit lands, houses, and tenements, for residence, occupation, and trade, for a term not exceeding 21 years.” In 8 of the United States, viz., Massachusetts, Ohio, Michigan, Illinois, Iowa, Wisconsin, Louisiana, and Florida, aliens have, in respect to real estate, equal rights

with citizens. In New Hampshire, the sole prerequisite is residence in the state. In New York, Rhode Island, Connecticut, Maine, Delaware, Maryland, Virginia, Tennessee, Arkansas, Indiana, Missouri, California, Minnesota, and Georgia, a declaration of intention to become a citizen, either alone or accompanied with residence in the United States or the state, is required. Vermont, North and South Carolina, require residence and the oath of allegiance. In New Jersey and Pennsylvania, the privilege is limited to alien friends (natives of countries in amicable relations with the United States), and in the latter state, also, to the ownership of 2,000 acres of land, except where it comes by descent. In Kentucky, Alabama, Mississippi, and Texas, the matter remains substantially as at common law. Aliens may, as a rule, sue and be sued, but are incapable of serving in juries, voting, or holding office. Where they can hold property, they are generally subject to militia duty, and the other burdens and taxes of citizens. The practice of trying aliens by a jury *de medietate linguae* (half aliens) has fallen into general disuse. The power to expel aliens from the state is vested, in France, in the minister of the interior, and in England and America theoretically in the executive, though it has never been exercised in either of the two latter countries, except in pursuance of an act of parliament or of congress. Such an act was passed in England in 1848, but a report made in 1850 showed that it had not been enforced in a single instance. By the census of 1850, it appears that there were 2,210,839 foreigners in the United States, of whom 961,719 were Irish born, 578,235 Germans, and 278,675 English. An alien woman, who marries a citizen or a subject, whether he be native-born or naturalized, becomes thereby, by recent statutes both in England and America, a citizen or subject herself. The secretary of state of England may, in his discretion, grant a certificate to any alien, who memorializes him therefor, entitling the memorialist to all the rights and capacities of a native, except that of being a member of the privy council or of either house of parliament, and such other exceptions as may be stated. An easy way is provided in this country for an alien to become a citizen to all intents and purposes, except that of being president of the United States. (See NATURALIZATION.)

ALIGHUR, or ALLIGHUR. I. A district of India, in the province of Meerut, lying between the rivers Jumna and Ganges. In its northern portion it is uncultivated, and mostly covered with low jungle, but its southern part is very fertile. II. The capital of this district, situated about 50 miles north of the city of Agra. It is a strong place, and it was only with severe loss that the British made themselves masters of it in 1803. The principal civil authorities reside at Coel, a town 2 miles distant from Alighur, with which it is connected by an avenue planted with fine trees. Alighur itself is rather a

fortress than a town. Pop. of the district in 1846 estimated at 766,161.

ALIGNAN, BENNOIR D', a learned Benedictine, who died in 1268. In 1229 he was appointed bishop of Marseilles, and in 1239 he joined Thibaut, king of Navarre, in his expedition to the Holy Land. In 1252 a new religious order was introduced under the auspices of his pre-lacy, which received the sanction of Clement IV. in 1266, but was vetoed by the council of Lyons in 1276. He was a writer of considerable ability for his time, and left many theological works, some of which have been printed.

ALIGRE. I. ÉTIENNE D', chancellor of France, born at Chartres in 1550, died in 1635. He was president of the presidial court of Chartres, and intendant of Charles de Bourbon, count de Soissons, who appointed him tutor to his son. In 1624 he obtained the appointment of keeper of the seals, and at the end of the same year, after the death of Sillery, the rank of chancellor. In 1622, in consequence of having given an undiplomatic answer to Gaston d'Orléans, which gave umbrage to Cardinal Richelieu, he was obliged to tender his resignation. II. ÉTIENNE his son, born in 1592, died in 1677, was more fortunate. After having been councillor, intendant of justice in Languedoc and Normandy, ambassador at Venice, director of finance, president of the councillors of state, he became keeper of the seals in 1672, and chancellor in 1674. III. ÉTIENNE FRANÇOIS, a French magistrate, born in 1726, died at Brunswick in 1798, is a descendant of the same family, but must not be confounded with Étienne. Étienne François was the president, at one time, of the parliament of Paris, and remonstrated with the king on the subject of taxation. One of his memoirs on this subject, read in the presence of Necker before the king, not having produced the desired effect, he tendered his resignation, was arrested, barely escaped death on the day of the capture of the Bastille, eventually ex-patriated himself, and died in exile.

ALIMENT, Food. The body is in a state of constant change, every one of its movements, every exertion of the mind, even the contractions of the heart, by which the blood is driven through the vessels, or of the muscles by which we breathe, are attended by the disintegration of a certain portion of the tissues, which thus becomes unfitted for the uses of the organism and must be eliminated from it. Again, we live in a temperature habitually lower than that of the body, and yet the maintenance by it of a certain fixed temperature is a necessary condition of life. That temperature is maintained by chemical changes occurring within the body itself, by the union with oxygen, by the slow combustion of matter, which at the time was a portion of the living being. The constant waste of the tissues and the necessity of maintaining a fixed temperature, demand sufficient supplies of food, by which the waste may be repaired and the temperature maintained. According

as food serves one or the other of these requirements, it has been termed plastic or histo-genetic (tissue-forming) or calorific (heat-producing); this last, too, from its uniting in the course of the circulation with the oxygen absorbed during respiration, has been termed respiratory food. These terms have only a relative truth; the tissues themselves, in the process of disintegration, unite with oxygen and are calorific, while fat, one of the principal of the respiratory forms of food, enters largely into the composition of the nervous system, and its presence is essential to the process of cell growth, by which the tissues themselves are formed. A better division of the varieties of food, is a modification of that produced by Dr. Prout, and by which they are formed into 4 groups; the saccharine, the oleaginous, the albuminous, and the gelatinous. The first of these divisions contains starch, sugar, gum, and their allied substances. They are composed of carbon, hydrogen, and oxygen alone, the oxygen and hydrogen existing in the same proportions as in water. By themselves they are insufficient for nutrition, and animals fed upon them exclusively invariably die of starvation in a short time. They appear, however, to be capable of being converted in the organism into fat; bees fed entirely upon raw sugar still forming wax, and animals fed upon weighed quantities of food, all the oil contained in which had been calculated, forming fat to an extent which could only be accounted for by the conversion into that substance of a portion of the saccharine principles of their food. Their chief use as food is, however, the maintenance of the animal heat; as the hydrogen and oxygen they contain exist already in the proportions which form water, their carbon is the representative of their heat-producing value. This uniting with oxygen within the organism is eliminated as carbonic acid, while their other elements pass off as water. Connected with this group are the vegetable acids, the tartaric, citric, malic, racemic, &c., contained in many fruits and vegetables. In them the oxygen is in excess of the hydrogen; they serve when eaten as heat-producing aliment, but from the small quantity in which they are used, exercise but little influence. To the oleaginous group belong the fats and oils whether of animal or of vegetable origin. Like the preceding group, they will not of themselves sustain life. Repeated experiment has proved, that no amount of mere oil or fat, or no combination of them with each other, or with pure starch or sugar, will prevent starvation. Like the preceding group, one of their chief uses is the production of animal heat, and to this purpose their chemical constitution adapts them in a peculiar manner. They consist, like starch, of carbon, hydrogen, and oxygen alone, but the hydrogen and oxygen do not exist in the same proportion as in water, the hydrogen is in excess, and by so much the heat-producing power is enhanced. One part of fat, according to Liebig, is equiva-

lent to two parts and a half of starch for calorific purposes. It is this which renders oil so valuable an article of diet in high latitudes, and the enormous quantity of fat he consumes plays a principal part in enabling the Esquimaux to resist a temperature of many degrees below the zero of Fahrenheit. The fat not immediately called for by the wants of the economy, is often stored up within the body for future use. In temperate climates the food of herbivorous and graminivorous animals is particularly abundant and nutritious during the autumn. Thus the approach of winter finds them fat and in good condition, and the fuel so stored away, helps to supply their wants during the inclemency of winter. Fats are not only found in the animal kingdom and in the seeds and fruits of various plants, but in a less degree they are widely distributed throughout the vegetable kingdom; Indian corn or maize owes its superiority in fattening animals to the large percentage of oil it contains. In addition to carbon, hydrogen, and nitrogen, the albuminous group contains nitrogen, together with minute proportions of sulphur and phosphorus. It forms, eminently, the histo-genetic or plastic material of food. The muscular and glandular structures of animals, the parts in which waste goes on most rapidly, consist mainly of albumen and fibrine, and no aliment which does not contain either these substances or some modification of them, is sufficient for the reproduction and repair of the organs into which they enter. As vegetable fibrine and albumen they constitute the most important element in the cereal grains, they are found in all the esculent roots and seeds, and in less extent they exist in grasses, and indeed are spread throughout the vegetable kingdom. Caseine exists in milk, legumine in peas and beans, and animal and vegetable fibrine, caseine, and legumine, are all nearly identical in chemical composition, and are mutually convertible into each other. The process of nutrition in animals does not consist in the formation of new material from the substances offered in their food; they find in their food substances identical with their own tissues, and nutrition is essentially the separation, solution, absorption, and vitalization of those substances. The vegetable kingdom is the great storehouse whence animal life is nourished. Under the influence of heat, vegetables absorb carbon from the atmosphere, and suck up by their roots water holding ammonia and salts in solution from the earth, and elaborate them in their textures, and render them fit for the food of man and animals. No animal derives nourishment from the inorganic kingdom. The stories of savages in South America who feed upon an unctuous earth are destitute of foundation. They may take such substance for the purpose of filling their stomachs and thus allaying the cravings of hunger, or from a morbid appetite, but they derive no nutriment from them. Like albumen, gelatine is one of the constituents of all the higher animals; like it, too, it contains

nitrogen. It forms the chief part of the skin, of the tendons, ligaments, and cartilages, and it is particularly abundant in the tissues of young animals. It is soluble in water, and forms the chief material of soups, which derive from it their power of gelatinizing, of becoming a thick jelly-like mass. At one time it was deemed highly nutritious, and as it is contained in large quantity in bones, it was proposed to extract it from them by boiling under high pressure in a digester, and thus obtain for the sick in public hospitals a cheap concentrated nutriment which would otherwise be wasted. But it was soon found that the patients did not thrive on their new diet; however disguised or flavored, they soon rejected it in disgust. Commissions were appointed both at Paris and Amsterdam to test the nutritive value of gelatine, and it was discovered that animals fed upon it, died rapidly of starvation. It does not seem even to assist in the formation of the gelatinous tissues of the body; these are formed from albumen and fibrine by a process of disintegration. Its utmost use is as a heat producing agent of low value, which is readily absorbed and taken into the system. Beside the organic substances, the sugar and starch, the fat and albumen which enter into the composition of food, certain inorganic substances are equally necessary. Phosphate of lime is needed to give firmness to the bones; the globules of the blood contain iron; dissolved in its serum are compounds of sodium, potassium, and magnesium; chlorine exists in it in the form of chlorides of sodium and potassium. These substances are necessary ingredients of food. They are essential to the growth of the young animal, and without them the adult perishes as surely, if not so rapidly, as if deprived of fat and albumen. Man obtains them in part from the animals he consumes as food, the herbivora from the vegetables from which they derive their nutriment. It is remarked by Liebig that there is a striking similarity between the ash of the blood of animals and of the substances which they habitually consume. The ash of the blood of the sheep differs from that of the fowl, very much in the same way as the ash of turnips differs from that of peas and rye. The salts essential to nutrition are, as a rule, contained in sufficient quantity in food appropriate to the animal, but when not so furnished the deficiency may be sometimes made up by the animal taking it directly from the mineral kingdom. Unless fowls are furnished with lime their eggs have not the necessary firmness of shell. In one of Bousingault's experiments, a pig kept upon a weighed amount of food, which afforded an amount of lime insufficient for the growth of his bones, obtained the necessary material from the hard water containing lime which he drank. Nearly three-fourths of the weight of the living body consist of water alone. It gives liquidity to the blood and juices of the flesh; rendered fluid by it, the materials adapted to nutrition are taken into the circula-

tion, and through it are appropriated to the various wants of the body; it is essential to the various changes which are constantly going on in the body; and dissolved in water, those substances which have already served their purpose in the economy, are carried out of the system. From the immense waste of fluid which is constantly going on from the lungs, skin, and kidneys, a frequent supply is more immediately necessary to life than of food itself. Man then, for perfect nutrition, requires a supply of plastic material in the form of albumen, or its allied substances, of heat-producing food, as fat, starch, &c., of the inorganic substances, iron, lime, phosphoric acid, chlorine, sodium, potassium, &c., which, in minute quantities, are contained in the blood, and of water, the vehicle of which is necessary for the activity of the other substances. Milk, the food which nature provides for the young of the mammalia, contains all the ingredients necessary for complete nutrition; the albumen is represented by caseine, the fat and the sugar of milk concur in the formation of fat and in the production of heat, while the salts, held in solution in the whey, are almost identical with those of the blood, with an excess, however, of the phosphate of lime and magnesia required by the hardening and growing bones of the young animal. The proportion of the different ingredients of the milk is varied in different families to suit their different requirements. The young calf walks from the time it is dropped, and cow's milk is relatively rich in caseine or plastic material, while the human infant, in whom locomotion begins only at a later period, is supplied with a milk relatively deficient in caseine and rich in heat-producing material. The fibrine and albumen, the gelatine and fat of all animals ordinarily used as human food, are chemically identical; the difference in flavor depending on mechanical differences of texture and on the presence of sapid principles in minute quantity, which have not hitherto been isolated. Lean flesh is richest in plastic material, 17 parts, according to Liebig, being equal in histo-genetic value to 56 parts of wheat flour; while, on the other hand, it is deficient in calorific power, 100 parts of fat being, for such purpose, equal to 770 parts of lean flesh. The flesh of young animals is rich in gelatine, the least valuable of the constituents of animal food, while it is deficient in fibrine and albumen; veal beside consisting largely of gelatine is wanting in fat, and in common with the other white meats contains a much smaller proportion of iron than the flesh of adult red-blooded animals. On the other hand, pure fat or oil, whether of animal or vegetable origin, is the most valuable of all food for the production of heat. It must, moreover, be remembered here, that while lean flesh contains over 75 per cent. of water, fat is destitute of moisture. While pure fat contains no nitrogen, the cellular tissue, in the meshes of which the fat is deposited, contains it in notable proportion, and has a certain plas-

tic value. To look upon fat as solely a means of maintaining the heat of the animal economy, is however to take a far too limited view of its action; as was before mentioned, it is a necessary ingredient in the formation of cells, essential alike to life and growth. The Hindoo in a tropical climate takes the rancid butter (ghee), which he eats with his rice, with as strong a relish as that with which the Esquimaux devours his raw blubber. There are many circumstances which go to show that its free use does much to protect the system from scrofulous and tubercular disease, and not the least among these is the fact, that the population of Iceland, in whose diet fish oil is a large ingredient, though exposed to conditions largely calculated to produce such disorders, are remarkably exempt from them. (Analysis of Dr. Schleissner's report on the sanitary condition of Iceland, in the British and For. Med. Chirurg. Review, vol. 5, p. 456.)—The mode in which meat is cooked exercises a considerable influence upon its nutritive value. In roasting, the loss amounts, in beef, to 19, in mutton to 24, in lamb to 22, and in fowl to 24 per cent. This loss consists of water which is evaporated and of fat which is contained in the gravy; the chemical constitution of the meat is the same after as before roasting. With boiling it is different; here the apparent loss is much less, consisting in beef of 15, in mutton of 10, and in fowl of 18½ per cent., and this loss is chiefly fat, gelatine, and water, for in boiling meat loses, but does not imbibe that fluid; but the water is not simple water, but the juice of the meat containing various salts essential to it. Ten pounds of fresh meat yield, according to Liebig, 2½ oz. or 662.8 grs. of ash on incineration; when exhausted, by washing and boiling the same weight of meat yields only 118 grs. The ash of fresh meat contains more than 40 grs. of potash, the ash of the boiled meat yields less than 5 grs. of the same alkali. A dog fed exclusively on such meat starves. To obtain the full value of boiled meat the soup should be eaten with it. If meat is intended for soup it should be put in cold water and the heat gradually and slowly raised to the boiling point. If the meat is the principal object it should be plunged in boiling water, and after boiling a few minutes the heat should be lowered to 160° F. and kept at that point until the meat is cooked. By this means the albumen on the external part of the flesh is coagulated and protects the interior of the flesh from the loss of its juices. When fresh meat is covered with dry salt, the salt soon becomes moist and is finally converted into a liquid; by the superior affinity of the salt for water, it abstracts it from the meat, which thus becomes denser, drier, and less susceptible of undergoing putrefactive change. The brine will be found to contain not only the water from the meat, but potash, phosphoric and lactic acid, together with albumen, which coagulates when the brine is heated. With the exception of gelatine it contains, in fact, the substances which are found in soup, the albumen indeed being in larg-

er quantity. The meat is rendered at once less digestible and less nutritious, and when, as on shipboard in long voyages, it constitutes the principal article of food, scurvy is induced in those living upon it, not by the presence of salt in the meat, but by the deficiency of the latter in potash and other inorganic matters.—Of all substances derived from the vegetable kingdom, wheat is the one which by common consent of civilized nations is best adapted in man for perfect nutrition. In it the average proportion of plastic to heat-producing matter is as 1 to 4.7, and this proportion is not greatly departed from in the cereal grains most commonly used for food. Thus in rye it is 1 to 4.9, in oats 1 to 5, in barley 1 to 5.75, in Indian corn 1 to 5.76, in buckwheat the proportion descends to 1 to 11, in rice 1 to 12. In the leguminous plants, on the other hand, the amount of plastic material is proportionally much greater, being in peas as 1 to 2.33, in beans 1 to 2.29, and in lentiles 1 to 2.13. (Knapp's Technology, calculated from the analysis of Horsford, Krocker, and Thomson.) It must be recollected that various specimens of the same grain vary much from each other, according, 1, to the climate; 2, the variety used as seed; 3, to the soil, and the degree to which it is manured; and 4, to the dryness or moisture of the season. Wheat, which has been more thoroughly studied than the other grains, is found richer in gluten in the south than in the north, in dry than in wet seasons; while the starch is in inverse proportion to the gluten, taking its place when absent, and Hermbstädt found that with certain manures wheat contained in 10,000 parts, 3,670 parts of gluten, while the same variety on unmanured land yielded but 1,108 parts. (Knapp's Chemical Techn. vol. iii., p. 82.) The salts contained in the ash of wheat vary in the same manner according to the mineral constituents of the soil. "There are," says Liebig, "varieties of wheat, the ashes of which are in quantity and the relative proportion of salts the same as those of boiled and lixiviated meal, and it cannot be maintained that bread made of such flour would, if the only food taken, support life permanently." Wheat owes its superiority for the use of man over the other cereals, principally to the fact that the toughness and viscosity of the form which its nitrogenous principle assumes (gluten), enables it to retain more completely the æriform matters which are disengaged in the process of bread making, thus giving a lighter and more porous bread. The gratification of our palate and fancy, in the use of a perfectly white flour, entails a large loss of nutritive material. The external parts of the grain are richest in gluten and salts, the central parts contain comparatively more starch; it is impossible to separate the woody fibres, which constitute the envelope of the grain, without taking with it more or less of its most nutritious portion. In this way more than $\frac{1}{2}$ of the grain, and much more than $\frac{1}{2}$ in nutritive value, is lost as human food.

Rice contains a smaller amount of nitrogenous matter than the other cereals; Horsford, from the result of analysis, puts down the nutritive value of rice as compared with wheat, as 100 to 228, while Boussingault, by actual experiment on animals, found 100 parts of wheat equal to 225 parts of rice. It is likewise deficient in salts; wheat gives, when incinerated, from $1\frac{1}{2}$ to $1\frac{3}{4}$ per cent. of ash, rice yields from 3.3 to 3.5 per cent., and the Carolina rice, which affords the largest and plumpest grain, gives the smallest proportional amount of ash. Dr. Baikie, on his voyage up the Niger, found that the Kroomen who composed part of his crew, fed on an allowance of $1\frac{1}{2}$ pints of dry rice per diem, became affected with scurvy. The Doctor attributes the disease to the insufficient amount of nutriment, but though this may have had its influence, it is probable that the deficiency of the rice in mineral constituents was the principal cause of the disease; it was deficient in the same way as salted beef. The great productiveness of the potato has, in some countries, particularly Ireland and Germany, where many of the inhabitants have to subsist upon the cheapest and consequently the coarsest and least nutritious food, rendered it the principal article of diet for large masses of people. A hectare (2.471 of an acre) of land, that yields 3,400 lbs. of grain in wheat, will produce 88,000 lbs. of potatoes; now in these amounts there are contained in the wheat 570 lbs. of plastic material, and 1,590 lbs. of starch, while the potatoes yield respectively 950 and 6,840 lbs.; the difference in the amount of mineral constituents is equally striking, the wheat affording 90 lbs. of ash, the potatoes 323 lbs. But when, instead of the total product, we consider the nutritive value of equal weights of the two, a widely different result obtains. In the first place, while wheat contains but 14.5 per cent. of moisture, the potato on an average yields 75 per cent.; 2d, it is deficient in nitrogenous matter, the principal bulk of the dried potato consisting of starch. While in wheat the proportion of the former to the latter is as 1 to 4.7, in the potato it is as 1 to 10. In his table of practical equivalents, Boussingault estimates 100 lbs. of wheat to be equivalent to 581 lbs. of potatoes. But we must not estimate the value of the potato as human food solely by its plastic or heat-producing matter; it forms a variety of vegetable food, rich in potash and other salts, and readily preserved from one year to another, and in modern times it has been the great means of preserving the population from the recurrence of scurvy endemic which desolated Europe every winter and spring before its introduction. In the years of the failure of the potato crop numerous cases of scurvy occurred throughout Great Britain and Ireland, showing its great value in this respect. In boiling, a portion of the soluble salts contained in the potato remains in the water; thus it happens that the raw tuber is more beneficial than the boiled, in that disease. Other vegetables, whether roots, as turnips, beets, carrots—or leaves, as the

different varieties of lettuce, cabbage, &c., are little used by themselves as human food, but form merely an addition to more substantial aliment. They all, however, contain a large amount of alkalies, particularly potash, on which, according to Dr. Garrod, their efficacy as anti-scorbutics depends. The same remark is applicable to the fruits of temperate climates. They consist largely of water, holding in solution organic salts, mainly citrates, tartrates, malates, and oxalates of potash, in which the acid is in excess, of sugar and starch, with, in proportion to their bulk, an exceedingly small proportion of nitrogenous matter. In tropical climates the sugar, &c., contained in fruits is often largely increased, and with this there is an increased proportion of plastic matter. The banana, date, and fig, in their native countries, are important articles of food. The juice of the sugar-cane contains, too, a considerable amount of nitrogenous matter, so that it possesses decided value as a plastic nutriment. In the manufacture of refined sugar this is removed, leaving that substance, of course, free from nitrogen. While the proportion of plastic to heat-producing food, contained in wheat flour, 1 to 4.7, is that which seems best adapted to man in temperate climates, and that to which, in most diet lists, an approximation is made more or less close, health can be maintained and labor performed under a widely different constitution of food. On the pampas of South America, the Guacho lives almost exclusively on animal food alone, and by it in a warm climate, with constant exposure and active exercise, maintains his strength and vigor. He despises lean meat, and the fat of his cattle is his only respiratory food. The Hindoo in India lives almost entirely on rice. To obtain from this the necessary plastic material, he consumes it in enormous quantity; the starch, which is not needed, passes undigested through the alimentary canal. With food various condiments, salt, vinegar, pepper, mustard, spices, &c., are constantly employed. Of these, salt (chloride of sodium) alone, forms a constituent part of the economy, and in most substances used as food, it is contained in quantity sufficient for the wants of the system; from the universal desire for it, somewhat more than this is probably beneficial, and considerably more may be taken with impunity. Vinegar, in some instances, increases the solubility and digestibility of various articles of food, and in itself, like the other organic acids, has a slight value as an aliment. The other condiments are chiefly used as stimulants to arouse and excite the languid powers of the stomach, and, like other stimulants, their habitual use is injurious. For the other accessory matters of food, tea, coffee, chocolate, alcohol, &c., see the articles on those subjects.

ALIMENTARY CANAL, or DIGESTIVE TUBE, are words used to designate the continuous passage and hollow tubular form of the digestive organs, from the mouth to the anus. This

passage, or canal, although continuous throughout, is not of equal dimensions in all parts; nor is it always open from beginning to end, but closed by valves, at certain distances, as the lips are closed or opened at will, to admit food, and utter sounds. There are three great divisions in the alimentary canal; the stomach, the small intestines, and the large intestines. Each of these has its peculiar form and structure, as well as its appropriate functions. The stomach is, comparatively, large, short, and capacious; the small intestines very long, and convoluted in many folds or windings; the large intestines are of intermediate form, capacity, and length. A straight duct or passage, some 10 inches long, and of medium capacity, called the œsophagus, leads from the mouth down to the stomach; another duct, called the duodenum, some 12 inches long, and also of medium capacity, leads from the stomach to the small intestines; these open immediately into the cæcum, or lower portion of the large intestine; and a third straight duct, called the rectum, some 10 or 12 inches long, and also of medium capacity, leads from the sigmoid flexure of the large intestine to the anus. The œsophagus and the rectum, therefore, form connecting tubes between the two extremes and the internal portions of the alimentary canal, while the duodenum forms a similar connecting link between the stomach and the small intestines. Certain portions of the alimentary canal are always more or less free and open, while others are habitually closed, as temporary obstructions. The lips form a valvular opening for the mouth externally; the velum pendulum palati and the uvula form a valvular obstruction to the passage of the food during mastication, and special efforts of deglutition are required to overcome this valvular impediment; the lips of the œsophagus close upon the food when it has fallen into the stomach, and a valvular reduplication of the lining membrane of the duodenum forms a temporary obstruction to the passage of the food from the stomach onward, while it is undissolved by the gastric juice and churnings of the stomach, and therefore unfit for entrance into the duodenum. This valvular arrangement is called the pylorus, and a special involuntary movement is most probably required to open it for the passage of the chyme, as the act of deglutition is required to pass the food from the mouth into the pharynx, and thence through the œsophagus into the stomach. Below this point of communication between the stomach and the duodenum, the pancreatic and the biliary ducts, leading from the pancreas and the liver, open into the duodenum, to which they are attached, and pour upon the food already partially dissolved, while passing through the mouth and through the stomach, the bile and pancreatic juices necessary for the further transformation of the mass from acid chyme to bland and milky chyle, in which state it passes into the small intestines, and becomes fit for absorption by the lacteals and

commixture with the blood, to which these vessels carry it. The refuse passes onward from the small intestines to the large, and in these regions numerous secreting follicles elaborate waste matter from the blood, and pass it onward through the large intestines and the rectum, to be thence eliminated in the form of feces from the body.—A valvular arrangement at the entrance of the small intestine into the cæcum or large bowel, also prevents the fecal matter from returning upward, when it has been passed along on its way outward from the system. The movements and the operations of the alimentary canal are all involuntary, with the exception of the two extremes, ingestion and egestion only being to some extent under the control of the will. The alimentary canal in man, when stretched to its full length, is about five times the length of the whole body, i. e. from 28 to 30 feet. In the carnivorous animals it is about 8 or 4 times the length of the body, while in the herbivorous tribes, it is proportionally longer than in man.

ALIMENTUS, **LUCIUS CRICUS**, a Roman historian, antiquary, and jurist. The dates of his birth and death are unknown, but he was prætor in Sicily, having 2 legions under his command, B. C. 209. He was for some time a prisoner in the hands of Hannibal, and although that general usually bestowed rather harsh treatment on those Romans who fell into his power, he appears to have treated Alimentus with consideration and kindness. He gave him an account of his march through Gaul, and over the Alps, and evidently saw in his prisoner tokens of genius which attracted his attention, and commanded his respect. Alimentus, and his contemporary, Fabius Pictor, are spoken of by Dionysius of Halicarnassus as the oldest of Roman annalists. The former wrote a history of Rome from the foundation of the city to his own times, which is quoted by Livy as a valuable authority. In this work he is stated (for only some fragments of his works are preserved) to have said little concerning the early history of the city, which was even then obscured by fables, but to have dwelt at greater length on the account of the more recent times, and especially of the events of his own day. He also wrote an account of his imprisonment among the Carthaginians, and a history of the rhetorician, Gorgias Leontinus, though it is not improbable that both these works were incorporated in the history above mentioned. He is highly praised by Niebuhr as an accurate investigator of the ancient history of his country, to which he applied the tests of a critical examination. Beside his historical works, he wrote others treating of various subjects, especially of law and antiquities. The fragments of this author which are still existing are appended to Corte's edition of Sallust.

ALIMONY, in law, is the allowance made to a wife out of the husband's estate or income, upon her separation from him. By the Roman

civil and by the English common law, the estate of the wife becomes absolutely vested in the husband. She may have settlements for pin money, or may have property of her own at the time of marriage which is reserved to her separate use. If this be the case, and such property being sufficient for her support, according to her station in life, she will not be granted further allowance from her husband's income. The amount of alimony is perfectly within the discretion of the judge, but about $\frac{1}{3}$ of the husband's net income is probably a fair approximation to the allowance in the English courts. It may be observed that in English law, alimony is applicable only to settlements made by the ecclesiastical courts of England under the wife's suit for separation *a mensa et thoro*; in other cases the term maintenance is generally employed. In other countries alimony has a more extended and general signification, applying to every allowance by whatsoever court or jurisdiction apportioned.

ALINARD, a French prelate born in the latter part of the 10th century, died in 1052. Against the wishes of his family, one of the most influential of Burgundy, he entered the monastery of the Benedictines of St. Benigne of Dijon. He was soon made abbot, and the reputation of his wisdom and holiness attracting the attention of the king of France, and emperor of Germany, he was in 1046, at the request of the clergy and laity of Lyons, appointed archbishop of the city. Having accompanied the emperor Henry of Germany, who was present at his installation, to Rome, his affability and eloquence made such a favorable impression upon the Romans, that after the death of Clement II., they desired him for pope, but in his modesty, he kept aloof from Rome until Leo IX. had ascended the pontifical chair. When Leo was to pay a visit to the emperor of Germany, he invited Alinard to preside over the Vatican until his return to Rome. Alinard died, as was supposed, from poison, on occasion of inviting to dinner Hugo, ex-bishop of Langres, and was buried with the greatest pomp in the church of St. Paul.

ALIPEE, a thriving town of Travancore, Hindostan. It is a seaport, situated about 80 miles S. E. of the town of Cochin, with an active trade in teak timber, betel nut, coir, and pepper. Population, 18,000.

ALIKUOT PART. A smaller number by which we can divide a larger number and have no remainder, is called an aliquot part of the larger number; in colloquial language it is called an even part.

ALISON, **ARCHIBALD**, a clergyman of Scotland, and author of "Essays on Taste," born in Edinburgh, Nov. 18, 1757, died in the same town, May 17, 1839. Indicating at an early age his inclination for literary pursuits, he was in 1772 sent by his father, a gentleman of affluence and position, to the university of Glasgow. His talents gave him eminence there, and in 1775 he was transferred to Balliol college, Oxford, and selected the ministry in the church

of England for his future profession. He gained high honors at Oxford, and became one in a small circle of young men, several of whose names were afterward distinguished, among whom were Dugald Stewart, Sir William Jones, and Dr. Matthew Baillie. In the year 1784 he received the degrees of master of arts and bachelor of laws, entered sacred orders, and married the daughter of Dr. Gregory, professor in the university of Edinburgh. He was presented to different livings by Sir William Pulteney and Lord Loughborough, to that of Sudbury in Northamptonshire, and of Brancepeth in Durham, and in 1790 obtained the perpetual curacy of Kenley, in Shropshire, where he lived happily and tranquilly, with mingled literary and pastoral labors, till 1800, when he removed to Edinburgh for the education of his children. There he became senior minister of St. Paul's chapel, in York place, and his eloquence and the high character of his sermons soon attracted the attention of the cultivated society of the metropolis. His chapel was frequented by those most distinguished for their rank or talent, eager to hear discourses which were esteemed the finest specimens of pulpit oratory that the country could boast. Mr. Alison retained this position, in the midst of friends and admirers, till 1831, when increasing years and failing health obliged him to withdraw from public duties. The first edition of his "Essays on the Nature and Principles of Taste" had been published in 1790, and, though highly esteemed within a limited circle of men of culture, had been issued in too expensive a style for general circulation. A second edition, with additions, was published in 1811, received the applause of Mr. Jeffrey in the Edinburgh Review, became popular, and has since then passed through several editions. The work is elegantly and eloquently written, in illustration and defence of a peculiar metaphysical theory. According to Alison, beauty is not an inherent quality of objects, but belongs to them from their association with our moral feelings,—material forms being not beautiful in themselves, but only because they express certain qualities and phases of the soul. This theory is a sort of Berkeleyian idealism, transferred from the intellectual to the æsthetic nature of man; and, though recommended by Alison in a charming style, and illustrated with great beauty of language and of ideas, has been received by but few philosophers. In 1814, Mr. Alison published 2 volumes of sermons, which obtained a very wide-spread popularity, passing rapidly through 5 editions, and being republished in America. Their reputation has subsequently declined, but Lord Brougham has pronounced several of them to be among the most finished models of composition in the English language, and Lord Jeffrey thus eloquently refers to them: "We cannot help envying Mr. Alison the power of uniting so much wisdom to so much eloquence, and giving us in the same work the highest gratifications of

taste, and the noblest lessons of virtue." Mr. Alison passed the latter years of his life in retirement, amid the society of his friends and the beauties of nature, in a villa which he purchased in Colinton, 8 miles from Edinburgh.

ALISON, ARCHIBALD, a Scotch advocate and historian, the eldest son of the preceding, born at Kenley, Dec. 29, 1792. He was educated in the schools and university of Edinburgh, whither his father removed in 1800. He chose the legal profession, was called to the bar in 1814, and availed himself of the first income from his practice to travel extensively in Europe. In 1828 he was appointed advocate-general, in 1828 became a member of the crown council, and in 1834 was made sheriff of Lanarkshire, an office which he still holds, and which is the highest judicial station in Scotland next to the bench. His first publication was a work on the "Principles of the Criminal Law," issued in 1832, which was followed the next year by a work on the "Practice of the Criminal Law." These books procured him considerable reputation as a writer, and became standard authorities with the Scottish bar. His literary fame was confirmed and spread throughout Europe by his great work, the "History of Europe, from the commencement of the French Revolution to the battle of Waterloo," the first volume of which appeared in 1833. The whole work extended to 10 volumes, was published at intervals during the next 10 years, and achieved a great success. It ran through numerous editions in England, was reprinted in America, and translated into French and German, and even into Arabic and Hindostanee. The author is said to have conceived the plan of this history in his youth, while the extraordinary events of the Revolution were taking place,—amid the excitement, enthusiasm, and the subsequent disappointment of all the cultivated young men of Edinburgh, and to have cherished his purpose during 15 years of travelling and study, and 15 more of composition. This work is especially valuable for the vast materials which it contains, culled with industry and judgment from the national repositories of Europe. The ability of the author is seen in the skill with which he manages his large collection of facts, arranges them in order, and presents them with an eye to effect. The style is always animated and generally clear, though not free from occasional verbiages and perplexities. Yet, with all the merits of this history, it has something of a partisan character. Mr. Alison belongs to the high Tory party of England, and is a strict and consistent conservative. He cherishes the British constitution as it was before the passage of the Reform bill of 1832, which he regards as one of the destructive consequences of the Revolution, and as the commencement of national ruin. His partialities of statement, however, as for instance the account of the battle of Waterloo, are not frequent; and through his tendency to write in support of a preconceived

theory, there is discerned an evident desire to deal fairly with all parties and concerning all events. In the spirit of his political creed, Mr. Alison has for many years contributed articles to Blackwood's Magazine on the principal events and the most important questions of the time. A selection of these has been published under the title of "Essays." He has also written a work entitled "Principles of Population," in which he combats the theory of Malthus; another work, entitled "England in 1815 and 1845, or a sufficient or contracted Currency;" and a "Life of the Duke of Marlborough," published in 1847, and which has reached its third edition. He has been engaged since 1852 on a continuation of his history of Europe to the accession of Louis Napoleon, of which 5 volumes have already appeared. Mr. Alison in 1851 was elected rector of Glasgow university, and received the honorary degree of D. C. L. from the university of Oxford; and soon after the formation of the Derby-Disraeli ministry in 1852, he was created a baronet.

ALISON, WILLIAM PULTENEY, physician and professor of the practice of medicine in the university of Edinburgh, is a younger brother of the historian. He has bestowed much attention on the poor and suffering classes; and in a work published at Edinburgh in 1850, entitled "A Dissertation on the Reclamation of Waste Lands," he recommends the colonization of such lands by paupers and criminals.

ALIWAL, a village in north-western India, near the bank of the river Sutlej. On the plain of Aliwal, Jan. 28, 1846, Gen. Sir H. Smith, with about 12,000 troops, obtained a brilliant victory over a Sikh army of more than twice that number.

ALIX (of Champagne), queen of Louis VII. of France, died in 1246. She was distinguished for her judgment and courage. During the expedition of her son Philippe-Auguste to the holy land, she was proclaimed regent of France and tutor of his son, her grand-child, Louis. Her firmness prevailed over the intrigues of the nobility and clergy, and contributed to strengthen the position of royalty against the pretensions of the papacy.

ALJUBARROTA, a town of Portugal, in the province of Estremadura, situated on the summit of a mountain, and about 15 miles S. W. of the district of Leiria. Here, Aug. 14, 1805, John I. of Portugal gained a victory over John I. of Castile, destroying about 12,000 Castilians.

ALKALI (Arabic, *al*, the, and *kalī*, ashes), name for a plant and also for salt-ash, or carbonate of soda extracted from its ashes. The term is now applied to a class of bases, soda, potash, ammonia, and lithia, whose distinguishing peculiarities are solubility in alcohol and water, uniting with oils and fats to form soap, neutralizing and forming salts with acids, reddening several vegetable yellows, and changing reddened litmus to blue. These properties are the reverse of those of acids, and the

two classes are regarded as antagonistic to each other. Some other substances, as lime, baryta, strontia, and magnesia, possessing some of the qualities of the alkalies as neutralizing acids, and changing the vegetable colors, are called alkaline earths. Pure anhydrous alkalies are exceedingly caustic, destroying vegetable and animal tissues. They abstract moisture rapidly on exposure to the air. Combined with carbonic acid and water, forming carbonates, they are used in medicine as diuretics and for correcting acidity, as well as for other effects. The alkalies and the earths also were, until the present century regarded as simple substances. Lavoisier first suggested that they were metallic oxides. Sir Humphrey Davy proved this in 1807, by separating the metals, to which he gave the names potassium, sodium, barium, strontium, and calcium, the last the metallic base of lime. The discovery of these metals led to that of pure potash and soda. The alkalies were known before only in the state of hydrates, though incorrectly regarded as anhydrous.

ALKALIMETER, a measure for estimating the quantity of an alkali in its solution. They are usually graduated glass tubes. They are employed principally for commercial purposes, for testing the strength of such articles as soda-ash, carbonates of soda and potash, &c.

ALKALIMETRY, the process employed to estimate the quantity of alkali present in any mixtures. Its principle consists in exactly neutralizing a certain weight of the alkali, and knowing the quantity of acid of a given strength which is required to effect this. The alkaline substance, carefully weighed, is dissolved in warm water, placed in the alkalimeter, and diluted sulphuric acid cautiously and slowly added till the solution is made neutral. This is known by the use of little bits of test paper in the liquid, which, by their change of color, indicate the slightest acid or alkaline reaction. The process may be reversed to test the strength of acids, and is then called *acidimetry*.

ALKALOIDS, vegetable extracts which possess alkaline properties in a low degree. They generally possess very powerful medicinal qualities. Most of them are obtained in a crystalline form; they are sometimes amorphous, as aconitina; and sometimes only in a liquid state, as nicotina, &c. Their ultimate elements are carbon, oxygen, hydrogen, and nitrogen. Among the most important and best known of them are morphia, quinia, sanguinaria, solania, strychnia, veratria, &c. Several varieties known by different names are extracted from the opium plant, but usually only one is obtained from a single plant.

ALKANA, the name of the root and leaves of *lauanea inermis*, used in the east as a dye for the nails, teeth, hair, tails of horses, garments, &c.

ALKANET, a term corrupted from the French *orcanète*, a rouge pot. The substance is a resinous coloring matter, obtained from the roots of the *anchusa tinctoria*, which is exten-

sively cultivated near Montpellier, in France. To alcohol and all unctuous matters, as oils, pomades, lip-salve, cheese, ointments, and plasters, it imparts a fine red color. It is also used in compositions for rubbing and giving color to mahogany furniture, and staining marble.

ALKINDI, an Arabian physician and philosopher, born at Bassora, at the end of the 8th, died in the middle of the 9th century (some place his life in the middle of the 12th, and others again at the beginning of the 11th century), was a lineal descendant of the Amroul-Kays, an Arabian tribe of Kindah; hence the name Al-kindi. He wrote more than 200 different works on logic, music, geometry, arithmetic, astronomy, medicine, &c. One of his theories was to make the virtues of medical prescriptions dependent upon mathematical and musical rules. One of his most interesting works, *Seft*, a prediction of the ruin of empires and general prophecy, was lost at the time of the capture of Bagdad by the Tartars. His work, *De Theoria magicarum Artium*, has secured for him the fame of a magician. Various other works of his were translated into Latin during the middle ages, and published at Paris, Strasburg, and Venice. His theories are distinguished by great ingenuity, so much so that Cardan ranked him among the 12 subtle spirits of the world.

ALKMAAR, a well-built and strongly fortified town in the province of North Holland, on the Helder canal, about 20 miles from Amsterdam, in lat. 52° 38' N. long. 4° 43' E. Its environs are laid out in beautiful gardens, and fine meadows; and broad canals intersect its streets, the banks of which are planted with trees. Alkmaar successfully withstood a siege of 10 years, by the Spaniards, from 1578 to 1588, and in the expedition of 1799 the British and Russians, under the Duke of York, halted here. A court of first resort, and a tribunal of commerce, sit in Alkmaar, and the town is well supplied with public schools, educational and scientific institutions, Latin and drawing schools, a clinical and medical school, and kindred establishments. The haven is commodious, and there is a large export trade in cheese and butter, of the former 9,000,000 pounds being annually weighed in the public scales. There is also a considerable trade in cattle and corn. The manufactures consist of sail cloth, parchment, salt, soap, vinegar, leather, and earthenware. The principal buildings are the town hall, a richly decorated gothic edifice, the church of St. Lawrence, built in the 15th century, the arsenal and fortifications. Cornelius Drebel, inventor of the thermometer, who died in 1634, was born here, and here Paschiers Laumertyn invented damask weaving in 1595. Population, 9,000.

ALKMAAR, HEINRICH VON, a poet of the 15th century, a native of Alkmaar in North Holland, became celebrated principally in connection with his supposed authorship of the famous German poem entitled *Reinecke Fuchs*.

This poem, which is a satire upon the state of society in Germany during the middle ages, and the feudal regime, first made its appearance in print in 1498 at Lubeck. This edition being the oldest, and Alkmaar's name being attached to its preface, it was generally taken for granted that he was the author. However, the matter is involved in doubts; and from Alkmaar's own statements in his preface, it seems more probable that he was rather the compiler than the originator of the poem.

ALKORAN. See KORAN.

ALL-FOURS, a game at cards played by 2 persons. The name is derived from the 4 chances of which it consists, namely, high, low, jack, and game.

ALL-HALLOWES, the English and Scottish version of All Saints' day. Hallowe'en is thought to be a night when witches, devils, and other mischief-making beings are all abroad on their baneful midnight errands; particularly those aerial people, the fairies, are said on that night to hold a grand anniversary. Burns's poem of "Hallowe'en" describes the superstitious customs and beliefs of the Scottish peasantry concerning this festival.

ALL-HANDS-A-HOY, a nautical term, the order by which the ship's company is summoned on deck by the boatswain. All hands to quarters a-hoy is the order given to prepare the crew for battle.

ALL IN THE WIND, the state of the ship's sails when parallel to the wind.

ALL SAINTS' BAY, in the province of Bahia, Brazil, is one of the largest and finest natural harbors in the world. The bay is 37 miles long, and 27 wide, and its surface dotted with islands. The town of Bahia, or St. Salvador, lies on the east side of the bay. Lat. 12° 42' S. long. 38° 42' W.

ALL SAINTS' DAY, a festival in honor of all the angels and saints of heaven, observed in the Roman Catholic church on Nov. 1, and also in the Protestant Episcopal and Lutheran churches. In the eastern churches the same festival has been observed since the 4th century. In the West, it was instituted by Pope Boniface IV., in the early part of the 7th century, on the occasion of dedicating the Pantheon, a temple built by Marcus Agrippa, B. C. 25, in honor of Jupiter the Avenger and all the gods, to the worship of the true God, under the invocation of the Virgin Mary and all the saints. This church is still standing, and is called the Rotunda. This feast became general in the 9th century, and is of the first class with an octave. The office was composed by Pope Pius V., on the basis of an older one.

ALL SAINTS' ISLANDS, three small islands belonging to France lying to the southward of Guadeloupe, 15° 51' N. lat. 61° 41' W. long. The area of the three islands is about five square miles. Population in 1849, 1,811.

ALL SOULS, the day after All Saints, set apart by the Catholic church for the commem-

oration of all the faithful departed, for whom the mass of requiem is said, and the office of the dead recited. In Germany, the people, both Catholic and Protestant, visit the graveyards on this day, and strew flowers on the graves of their friends.

ALLA BREVE, a musical term applied to that species of measure whose parts consist of breves. As a designation of time it denotes that the breve is equal to a semi-breve in $\frac{2}{3}$ time, and is to be played with twice the usual rapidity. This mode of time is marked by a *O* with a perpendicular line through it, placed at the beginning of the staff.

ALLAH (Arabic, *al*, the, and *Ilah*, God), the Mohammedan name of the Supreme Being. The unity of the Deity is the great postulate of the Mohammedan creed. His attributes are thus summed up by the Koran: "There is no God but God. This only true, great, and most high God, has his being in himself; is everlasting; witnesseth not and is not witnessed; is all-sufficient in himself; fills the universe with his infinity; is the centre, in which all things unite, as well the manifest as the hidden; is Lord of the world of bodies and spirits; creator and governor; almighty; all-wise; all-merciful; tender hearted; and his decrees are unchangeable." Mohammedans repeat a rosary of the 99 epithets of the Supreme Being, closing it with the great, all-inclusive name of Allah. *Allah akbar* (God is great) and *Allah illah Allah*, are battle cries of the Moslem; while *Bism Illah* or *Bism Allah* (in the name of God) is the grace before meat of the pious, and the invocation at the commencement of every literary performance.

ALLAHABAD, a province, city, and judicial district of British India. The city is 450 miles from Calcutta, lat. 25° 27' N. long. 81° 50' E. Population, 40,000. It is situated at the confluence of the sacred rivers Ganges and Jumna, to which the Bramins assert the Sereswati adds its holy current, which, although invisible on the surface, is held to communicate by a subterraneous channel. Immersion is a sacred rite of the Hindoos, and those who bathe here receive the benefit of a triple immersion. So holy indeed is the spot, that many pilgrims voluntarily drown themselves. About 200,000 visit the place annually. The city is supposed to occupy the site of Palimbrotha; and the modern buildings, which are mean and of poor materials, are raised on foundations that show the size and importance of the ancient city. The emperor Akbar resided here, and the town was fortified by him so as effectually to command the navigation of the great rivers on which it stands. In 1765 it was taken by the English, but restored to the native powers; and it became a British possession by treaty in 1801. There is a good native school here in which native students are taught Persian and Hindostanee, geography, arithmetic, and geometry.—The province is fruitful, producing indigo, cotton, and sugar, and bordering on Malwah, the

great opium district of India, it also produces a considerable quantity of this valuable drug. Wheat is the grain most cultivated, and the peasants get 56 bushels from the acre by using a system of careful irrigation. Diamonds are also found, but the rivers have fallen off in their yield. Mahmoud of Ghuznee, who had made a vow to invade India for several successive years, overran the province in 1020; and it subsequently fell into the power of the Moguls, on the breaking up of whose empire the nabob of Oude took possession of the northern part, and by various treaties finally ceded it to the British. The length of the province is 270 miles, and breadth about 120 miles. The inhabitants are chiefly Hindoos. Allahabad was an important military point during the great insurrection of the Bengal army in 1857.

ALLAMAND, JEAN NICOLAS SEBASTIEN, naturalist, born at Lausanne in 1718, died at Leyden in 1787. He was professor of philosophy and natural history at the university of Franeker, member of the London royal society, and of the Haarlem academy of science. The Dutch sailors rejoiced to collect for him, in their expeditions into distant countries, specimens of plants, animals, and fossils. These he placed in the botanical garden and museum of the university, which were under his care. He devoted much time to the study of electricity, and was the first to explain the phenomena of the Leyden jar.

ALLAN, MADAME CARADORI, a distinguished singer, was born at Milan in 1800. Her father, the Baron de Munch, formerly an officer in the French service, dying when she was about 20 years of age, she was obliged to employ, professionally, her musical talents, which had previously been cultivated under the direction of her mother, as an elegant accomplishment. On Jan. 12, 1822, she made her debut at the King's Theatre, London, as the page in Mozart's "Figaro," under the name of M^{lle} Caradori, having studied the music and the part only 8 days. Her success was at once established, and for 20 years she was one of the most popular singers in Europe, appearing to equal advantage in the concert room or on the stage. In 1840 she made a successful concert tour through the United States. Madame Caradori Allan, in addition to a voice of great sweetness and flexibility, possessed the faculty of singing and accompanying vocal music at sight in a higher degree than almost any of her contemporaries. In August, 1828, she married Mr. Allan, secretary of the King's theatre. Of late years she has retired from professional life.

ALLAN, DAVID, "the Scottish Hogarth," born at Alloa, in the county of Clackmannan, Feb. 18, 1744, died at Edinburgh, Aug. 6, 1796. When a schoolboy, he evinced so much skill in caricature, that his father determined to make him an artist, and apprenticed him to Robert Foulis, master of the drawing academy in Glasgow. He remained 9 years in this capacity, and learned to draw, paint, and engrave. At the

age of 20, he returned to Alloa, and Mr. Erskine of Mar, on whose estate he was born, sent him to study at Rome, where he soon distinguished himself, and, among other honors, obtained from the academy of St. Luke the gold medal for the best historical drawing. The subject was the traditionary origin of painting, and Wilkie said that Allan had made it one of the best told stories that color and canvas ever united to relate. It was engraved, and largely circulated, not only in Italy but in Scotland, and was the only good specimen of high art ever produced by Allan, whose skill lay in depicting the familiar and the humorous. His earliest productions in this line, which made the Italians call him "the Scottish Hogarth," were 4 sketches of the carnival at Rome, subsequently popularized by Paul Sandby's prints from them. On his return from Rome, in 1777, Allan visited London. Soon after, he settled in Edinburgh as a portrait-painter, and in 1786, after the death of Runciman, he was appointed master of the academy of arts. About the same time, he commenced the works by which he is best known, twelve drawings, with more broad humor than elegance, of Allan Ramsay's pastoral drama of "The Gentle Shepherd." He subsequently engraved these in aquatinta, and published them as illustrations of the poem. He also made some designs from the lyrics of Burns, who so highly estimated him that he said, "Mr. Allan and myself are the only genuine and real painters of Scottish costume in the world." Mr. Allan left a son and daughter, the former of whom went to India as a cadet in 1806. As an artist, he was not in the first rank, nor, though compared to Hogarth, did he aim at the moral teaching of that true painter. In the delineation of grave humor and open drollery, still so peculiar to the Scottish character, Allan was completely at home.

ALLAN, SIR WILLIAM, R. A., and president of the Scotch royal academy for the fine arts, born at Edinburgh in 1782, died Feb. 22, 1850. He was of humble origin, and after attending the high school for some time, was placed with a coach-painter, to learn the trade. He soon left him and entered the school of design, where he was the fellow-pupil of Wilkie. After studying here for some years, he removed to London, and entered the royal academy; his first picture was exhibited there. Failing to obtain patronage in London, he determined to visit Russia, and taking a few letters of introduction, he set out. Arrived at St. Petersburg, he found an ample field for the exercise of his talents, through the assistance of Sir Alexander Orichton, the imperial physician, and others. He spent 10 years in this country, and made visits to the Crimea, Circassia, Tartary, and Turkey, obtaining thereby abundant materials for use in his profession. In 1814 he returned to Scotland, and took up his residence at Edinburgh, where he became intimate with Sir Walter Scott, through whose influence his picture of the "Circassian Captives" was purchased by

subscription for 1,000 guineas. It was raffled for, and became the property of the earl of Wemyss. The grand-duke Nicholas, afterward emperor of Russia, also purchased 2 of his best paintings, when he visited Edinburgh. About this time he painted the "Murder of James Sharp," "Parting of Charles Stuart and Flora Macdonald," "Murder of the Regent Murray," and other scenes in Scottish history. Being obliged by a disease of the eyes to lay aside the pencil for a year or two, he visited, in the interval, Rome, Naples, and Constantinople, as well as parts of Asia Minor and Greece. Among other fruits of this journey, was his "Slave Market of Constantinople." In 1834, he visited the south of Spain and Morocco, and in 1841, once more went to St. Petersburg, where he executed for the emperor, a painting of "Peter the Great teaching his Subjects the Art of Ship-building," which now adorns the winter palace. For a year or two before his death he was confined to the house by chronic bronchitis; but until his infirmities became too great, he still perseveringly devoted himself to his art, his last work, "Bruce at Bannockburn," being incomplete at his death. In 1826, he was made an associate of the royal academy at London, and in 1835 an academician. He held the presidency of the Scotch academy from 1833 until his death in 1850. The honor of knighthood was conferred upon him in 1842. The paintings to which he chiefly owed his celebrity were his Russian and Circassian scenes, and his representations of incidents in Scotch history. In the latter part of his life, he painted several battle pieces, in which he treated his subjects successfully.

ALLANTSEE, LEONHARD and LUCAS, two brothers, the first booksellers of Vienna after the invention of the art of printing, natives of Augsburg, lived at the end of the 15th and the beginning of the 16th century. The elder, Leonhard, died in 1508, and the younger, Lucas, in 1522. They were engaged in active relations with the publishers of Augsburg and Venice. The first work which they brought out upon their own account was a Latin poem, 1511, 4to.

ALLARD, JEAN FRANÇOIS, a French general who gained distinction in India, born at St. Tropez in 1785, died at Peshawar, Jan. 23, 1839. Under Napoleon, he served in the staff of Marshal Brune, after whose murder he left France and repaired to Leghorn, thinking to emigrate to America. Changing his intention, however, he repaired to Egypt, and thence to Persia, where he was well received by Abbas Mirza. In 1820 he went to Lahore, and entered the service of Runjeet Singh, by whom he was finally made commander-in-chief of his army. In 1835 he revisited France, accompanied by his family, and was received with distinguished honors, Louis Philippe appointing him *chargé d'affaires* in Lahore. He returned in the following year to the Punjab, leaving his family in France. He died at Peshawar, and at his own request was buried at Lahore.

ALLARDE, PIERRE GILBERT LEROI, baron d', a French political economist, born at Montlucon in 1749, died at Besançon in 1809. He was a deputy to the states-general, and in 1790 a member of the committee on taxations. He took a prominent part in all financial questions, and was an ardent advocate of all measures tending to alleviate the burdens of the people. From the later scenes of the revolution he kept aloof, and devoted himself to commercial pursuits until 1803, when for a short time he held the office of manager of the Paris octroi.

ALLARDICE, ROBERT BARCLAY, commonly known as **CAPTAIN BARCLAY**, a famous Scottish pedestrian, and a captain in the British army, was born Aug. 25, 1779, and died May 8, 1854. His father, a skilful farmer, of an old Scotch family, was himself a noted pedestrian, having walked 510 miles in 10 days. The son, at the age of 15, won his first match, walking 6 miles within an hour. In December, 1799, he walked 150 miles in 3 days, and in June, 1801, 300 miles in 5 days, the weather being excessively hot. One of his most surprising performances was walking 1,000 miles in 1,000 successive hours. One hundred thousand pounds were staked on the result. This feat has seldom been surpassed by any pedestrian. In 1815, one Josiah Eaton walked 1,100 miles in 1,100 successive hours, and in 1850, Richard Manks walked 1,000 miles in 1,000 hours, at Sheffield, beginning each mile at the beginning of each hour, while Barclay was only obliged to complete a mile within each hour, and thus by walking 2 miles at a time, contrived to get an hour and a half of uninterrupted sleep. Manks was completely exhausted at the expiration of his task, and came very near dying, while Barclay, after sleeping 17 hours, awoke in the possession of his usual health and vigor. The same feat has been repeated by a woman in New York, during the present year (1857). Captain Barclay engaged in farming, in the latter part of his life, particularly in raising stock, and effected great improvements in the breed of sheep and cattle.

ALLART, MARY GAY, a literary woman, born at Lyons in 1750, died at Paris in 1821. She received an excellent education, and at the age of 18 was proficient in almost all the modern languages, especially the English. At first, she translated some English works into French, but her most successful effort was a novel of her own composition, *Albertine de Sainte Albe*. Her translations from the English, chiefly from Mrs. Radcliffe, are highly spoken of by Chénier, in his "Review of Literature since 1789."—Her daughter, **HORTENSE ALLART**, has published *La Conjuration d'Amboise*, and letters on the works of Madame de Staël.

ALLASS STRAIT, a channel between the islands Lombok and Sumbawa, in the Sunda group of the Malay Archipelago. The strait is about 50 miles in length, and 9 miles wide in its

narrowest part. It is considered the best for navigators, of all the passages of the group east of the island of Java.

ALLATIUS, LEO, librarian of the Vatican, and editor and translator of several authors, and an author himself, born in the island of Chios in 1586, died at Rome in 1669. While young, he was adopted by an influential Calabrian, and educated in the Greek college at Rome. His writings indicate learning and research, but are deficient in taste and discrimination. Though of Greek descent, he was a zealous partisan of the Roman church.

ALLE, a river of Prussia, rising on the S. borders of Polish Prussia, and after a course of 115 miles, uniting with the Pregel 27 miles above Königsberg.

ALLECTUS, the chief officer of Oarausius, king of Britain, in the reign of the emperor Diocletian. Fearing to be brought to account for his misdeeds, he murdered his master in the year 293, and usurped his throne, of which he held possession for about 8 years. At the expiration of that time, Caesar Constantius prepared to invade the island, from Gaul, and sent a detachment under one of his officers, which eluded the British fleet, landed on the western coast, and taking Allectus by surprise, routed his army completely. His body was found among the slain.

ALLEGAN, a county in the W. S. W. part of Michigan, on Lake Michigan, has an area of 840 square miles. The Kalamazoo river (navigable by small steamboats) intersects it, and it is drained by the Black and Rabbit rivers. The soil is a deep black alluvium on the river margins, and in some other parts sand and clay predominate; the surface is undulating, and mostly covered with forests, affording large quantities of lumber. There is a limestone quarry in the S. W. part of the county.—In 1850, the productions were 52,155 bushels of Indian corn, 2,521 of wheat, 16,711 of oats, 43,741 of potatoes, and 92,610 pounds of maple sugar. There were 6 churches, 1 newspaper office, and 1,196 pupils in the public schools. In the S. W. part of the country is a quarry of good limestone. Capital, Allegan. Population, 5,125.

ALLEGHANY. I. A county in W. S. W. New York, on the Pennsylvania border, contains about 1,045 square miles. It was formed from Genesee county, in 1806, and contained in 1855, 42,910 inhabitants. The products of that year were 183,631 bushels of wheat, 504,466 of oats, 258,870 of potatoes, 73,212 tons of hay, 1,141,162 lbs. of butter, 270,212 of wool, and 1,145,371 of cheese. The Genesee river and its tributaries supply this county with abundant water, giving the motive power of numerous grist and other mills. On each side of the Genesee valley, the country rises until it becomes table-land in the E. and W. parts. The industrial resources, in addition to agriculture, consist of 18 flour and grist mills, 122 saw mills, 18 tanneries, 5 woollen mills, 8 iron foundries, 2 carding and fulling mills, and 3 newspapers.

It also has 46 churches and 6,801 children in the public, and 884 in private schools. Bog-iron ore and limestone are obtained here, and facilities for transportation are afforded by the New York and Erie railroad and the Genesee canal, which pass through the county. Capital, Angelica. II. A county in W. S. W. Pennsylvania, was organized in 1778, and contains 750 square miles. Near the centre of the county the Ohio is formed by the confluence of the Alleghany and Monongahela rivers. The Youghiogheny and several creeks also drain it. Near the rivers the surface is broken into ravines; most of the upland is hilly, and very picturesque. Nearly all of the county is arable, producing in 1850, 526,856 bushels of wheat, 438,966 of corn, 257,408 of potatoes, 35,836 tons of hay, and 971,434 pounds of butter. It then contained 179 churches, 36 newspapers, 28 distilleries, 8 nail, and 2 coach and spring factories, 9 glass manufactories, 2 glass cutting factories, 17 iron foundries, 4 hardware manufactories, 13 machine shops, 13 rolling mills, 1 copper refinery, 69 flour and grist and 32 saw mills, 21 tanneries. In the public schools there were 12,664 pupils, and 8,468 under private tuition. Water power is abundant. The Pennsylvania canal, the central railroad, the Ohio and Pennsylvania railroad, the Alleghany valley, Pittsburg, and Steubenville and other lines traverse the county. Alleghany is the second county in importance in the State. Capital, Pittsburg; population, 138,290. III. A county in W. Maryland, on the borders of Pennsylvania and Virginia, containing an area of 800 square miles. The river Potomac and its N. branch form its S. boundary. The Youghiogheny river intersects its W. part, and it is drained by several creeks. The main Alleghany mountains and several smaller ridges traverse it, and its surface is rocky and broken. Limestone, sandstone, iron ore and stone coal, abound, the latter being extensively mined at Cumberland, the capital. The glades or valleys in the mountains furnish the celebrated glades butter and mutton. In 1850 the population amounted to 22,769, of whom 22,045 were free, and 724 slaves. The products were 101,773 bushels of corn, 73,525 of wheat, 163,943 of oats, 231,038 lbs. of butter, and 10,896 tons of hay. There were also 2 woollen factories, 1 iron foundry, 1 iron furnace, 4 saw mills, 1 machine shop, 31 churches, and 8 newspapers. In the public schools were 2,480 children, and 105 in private seminaries. The Baltimore and Ohio railroad passes through the county. IV. A county nearly in the centre of Virginia, area 500 square miles, with a population of 3,515, of whom 2,821 are free and 694 slaves. Jackson's river cuts into it, and uniting with Cow pasture river, on the E. border, forms the James river. Its N. W. boundary is the main Alleghany chain. Middle mountain extends along the S. E. line, and Peters mountain and the warm springs through the centre. The products of the county in 1850 were 88,426 bushels of corn, 16,937 of

wheat, 42,210 of oats, 1,211 tons of hay, and 29,712 lbs. of butter. It contains 2 iron furnaces, 2 forges, and 2 flour mills, 10 churches, and had 158 pupils in the public, and 30 in private schools. The James river canal, and the Virginia central railroad, terminate at Covington, the capital. The Covington and Ohio railroad is in progress of construction. The county contains iron ore, and the Red Sweet Springs, which have become somewhat noted. In 1850 its real estate was assessed at \$624,256, and in 1856 at \$869,040, showing an increase of 39 per cent.

ALLEGHANY CITY, an important manufacturing city in the vicinity of Pittsburg, on the right bank of the Alleghany river, at the junction of this river and the Monongahela. It has, with other towns, sprung up from the overflowings of Pittsburg, and now contains 120 manufacturing establishments of various kinds. For details, see **PITTSBURG**.

ALLEGHANY COLLEGE. See **MEADVILLE**.

ALLEGHANY MOUNTAINS. See **APPALACHIAN MOUNTAINS**.

ALLEGHANY RIVER, rises in Potter county, N. Pennsylvania, flows circuitously through New York, returns to Pennsylvania, and unites at Pittsburg with the Monongahela river. Its course is through a hilly country, abounding in pine forests and coal. The river is navigable for small steamboats nearly 200 miles from Pittsburg. The principal towns along its course are Warren, Kittanning, and Franklin.

ALLEGIANCE, the duty of a subject to a sovereign. According to the general policy of nations, a subject may not renounce his allegiance even by emigration, or naturalization in another country. The oath of allegiance is the oath which every subject may be called upon to take, and which is usually taken either upon assuming the higher offices of state, or judicial, and some other offices; or upon being naturalized. In the United States the oath is simply of obedience to the constitution, and with it is implied in the case of persons applying for naturalization, the renunciation of native allegiance to any other sovereign power. In England the oath of allegiance is to be faithful, and to bear true allegiance to the sovereign, and with the oath of allegiance is usually coupled the oath of abjuration, by which the right of the royal family to the crown of England is expressed, and the supremacy and authority of the pope are abjured.

ALLEGORY (Gr. *αλλος*, another, *αγορευω*, I speak), a figure of speech in which one thing is said and another meant, or more strictly, a sustained description or narrative of supposed facts concerning one thing, with a clearly perceivable design to have them applied to another. Of course, an allegory always implies comparison, which in turn implies abstraction. The objects compared in an allegory must be on different planes of thought. The use of the allegory depends on the fact that we are better acquainted with the objects of sense, than we

are with those of pure intellect, and can therefore make one of these classes of objects serviceable to convey a more vivid apprehension of the other. Hence the allegory must always run from the world of sense to the world of intellect. The allegory in its construction implies that there is actual resemblance between the objects on these different planes, and that such resemblance is discerned already by the allegorist, or in other words, that he understands equally the objects he compares, and so sees their resemblance. Hence the allegory is not a means of discovering truth, but only of conveying it, when discovered. It is plain that no processes of comparison can, strictly, be processes of discovery. The discovery has already been made when the comparison begins. Allegory is a form for dogmatizing—but not an instrument of reasoning. And yet allegory must be broadly distinguished from analogy. The allegory is an artificial, and arbitrarily constructed panorama of sensible images, behind which intellectual truths are seen by the mind, as through a transparency, while the analogy is the assertion of an organic law running through two planes of existence, and necessitating correspondences in those planes. An allegory may always be constructed where there is an analogy, but there is not always an analogy where an allegory has been constructed; for an allegory can be made of purely fictitious details arbitrarily arranged, whereas analogy confines itself to the field of fact and truth, and only exists as the result of law. Allegory is especially pleasing to children, and is, therefore, a valuable auxiliary of elementary instruction. For the same reason, allegory is more in vogue in the early than in the later development of a people and a language. Poetry, considered aside from its rhythmic structure, is mainly allegory. Hence, the first era of a nation is its poetical era. Hence, also, attempts have been made from time to time to discover an allegoric character in many ancient writings, where probably it never existed. Thus Homer was at one time made the subject of such attempts, doubtless simply because it was an ancient production. But the most remarkable attempt of the kind is found in the history of religion. About two centuries since theologians got the fancy that every thing in the scriptures was allegorical, and resorted to all extravagances of exposition to discover the symbolical meaning of every board and badger akin of the tabernacle. The distinction was lost between an allegory and an enigma. An allegory should not be too long sustained, as a general rule—the “Faery Queen” is often quoted by critics as an instance of unsuccessful allegory, from its length. And yet, the “Pilgrim’s Progress” may be referred to on the other hand, in the face of the rule. Oriental literature is especially rich in allegory. Allegorical writing requires a vivid imagination, while analogical demands profound knowledge and patient reflection. Allegory is to be distinguish-

ed also from myth. A myth is originally and intrinsically a spontaneous unconscious expression of a truth—an allegory, an artificial and deliberate one. A myth grows—an allegory is created. The present use of the term myth, especially by Strauss in his *Life of Jesus*, is not altogether in harmony with this distinction.

ALLEGRAIN, CHRISTOPHE GABRIEL, a French sculptor, born at Paris in 1710, died in 1795. His statue of Narcissus gained him admission into the academy. He executed various works of art for Madame du Barry, who placed them in her park at Luciennes. Those of his statues most admired, at the time of their production, were his *Venus* and *Diana*.

ALLEGRETTO, the diminutive of *allegro*. A musical term, signifying a time less quick than *allegro*.

ALLEGRI, GREGORIO, an ecclesiastic, and composer of church music, born at Rome about 1580, where he died, Feb. 16, 1640. He was the pupil of Nanini, and on terms of intimacy with Palestrina. His voice was not remarkable, but he was a perfect master of harmony, and so highly esteemed by the professors of the art in his time, that he was made one of the singers in the pope’s chapel in 1629. He was conspicuous for his benevolent disposition, and crowds of the city poor were the recipients of his charity, beside which he made frequent visits to the prisons, to mitigate the suffering of the more deserving of their inmates. So valuable were his musical contributions to the church service, that his death was felt as a heavy calamity. The famous *Miserere*, performed yearly on Wednesday and Good Friday of Passion Week, in the papal chapel, is one of his compositions. Yet the effect which it produces is due rather to the perfect manner in which it is given, than to its intrinsic merit.

ALLEGRO, an Italian word, signifying merry, joyful, and used to designate a quick, but not necessarily a gay, movement in music. The term is also applied to an entire composition, or a part of one of a quick and lively character. It denotes one of the 6 distinctions of time, which succeed one another as follows: grave, adagio, largo, vivace, allegro, presto. Other words are sometimes added to it to heighten or lessen the effect, or vary the expression, as *allegro assai*, very quick; *allegro non molto*, not very quick; *allegro con brio*, quick, with brilliancy.

ALLEIN. I. JOSEPH, a nonconforming clergyman, author of the famous “Alarm to Unconverted Sinners,” and other religious works, born at Devizes, in 1638, and died in 1668. He was educated at Oxford, and a man of extensive literary acquirements. Though ejected from his curacy for nonconformity, he yet preserved his reverence for the ecclesiastical authorities, and his loyalty to the king. His work above named, has passed through numerous editions. II. RICHARD, another English nonconforming clergyman, was born at Ditchet

in Somersetshire, in 1611, and died in 1691. He was educated at Oxford, and entering the church, was made rector of Batcombe, in Somersetshire. He was a rigid puritan, and assisted the commissioners appointed by parliament to purify the church of "scandalous ministers." He was deprived of his rectory, after the restoration, as a nonconformist, but continued to preach in a private house, notwithstanding the risk of punishment which he incurred thereby. Although often censured for so doing, his virtues shielded him from any severity on the part of the authorities. He wrote *Vindicia Pietatis*, "Heaven Opened," and "The World Conquered." The first is still a favorite work with the theologians of the same school.

ALLELUIA, a Hebrew compound, signifying praise ye the Lord, and variously employed by the Hebrews in their worship and sacred writings. It was early adopted by the church as a hymn of praise, but on account of its joyful character was forbidden to be sung during Lent. Musical composers have made frequent use of this term as a text for some of their grandest compositions, as in the sublime hallelujah chorus in Handel's "Messiah."

ALLEMAND, ZACHARIE JACQUES THÉODORE, comte, a French vice-admiral, born at Port Louis in 1762, died at Toulon, March 2, 1826. He entered the marine at the age of 12, and gradually was promoted to the rank of vice-admiral. He was one of the first chevaliers of the newly founded *légion d'honneur*, and was soon after its formation raised to the rank of officer. In 1805, when commanding the squadron of Rochefort, he operated at sea for six months, seized and destroyed 100 English merchant vessels, and the English man-of-war *Calcutta*. In 1806 he also inflicted some losses upon English commerce. In 1808 he was the sub-commander of the naval force of Toulon, and in 1809, commander of the squadrons of Brest, Toulon, and Rochefort, in the capacity of rear-admiral. The fleet was anchored in the bay of the island of Aix, when on the 6th of April, Lord Cochrane made his appearance with 50 fire-ships and several infernal machines, invented by Col. Congreve. The English were victorious, but the success which they achieved was very slight compared to the immense expenses connected with the attack. Allemand remained in active service until 1814, when, chiefly on account of his somewhat intractable character, he was put on the pension list.

ALLEN. I. A county in S. Kentucky, on the Tennessee line, has an area of 800 square miles. On the N. E. it is bounded by Big Barren river, and Trammel's creek flows through it. The surface is level, and the soil moderately fruitful. In 1850 the population numbered 8,742, of whom 7,428 were free, and 1,314 slaves. The products amounted to 411,655 bushels of corn, 9,563 of wheat, 65,306 of oats, and 760,806 lbs. of tobacco. There are several caves and salt springs in the county. The county was formed in 1815, and named in honor of Col.

John Allen, who was slain at the battle of Raisin. Capital, Scottsville. II. A county in W. N. W. Ohio, with an area of 405 square miles. The Auglaize and Ottawa rivers, and Riley and Sugar creeks, intersect it. It has a fertile soil, with a surface generally level, and abounding in hard wood timber. In 1850 it contained 12,109 inhabitants, and produced 288,450 bushels of corn, 140,580 of wheat, 62,254 of oats, 8,636 tons of hay, and 191,881 lbs. of butter. It also contained 19 churches, and a newspaper office, and had 4,500 children in the public schools. The Ohio and Indiana railroad and the Miami canal pass through the county,—the latter affording good water power. Capital, Lima. III. A county in N. N. E. Indiana, on the Ohio line, with an area of 638 square miles. It is nearly level in surface, with a fruitful soil, and well watered by the St. Joseph and St. Mary rivers, which unite at Fort Wayne, the county seat, and form the Maumee river. There are also several creeks flowing through the county. Aside from some oak openings and wet prairies, the country is well wooded with oak, hickory, beach, maple, and other trees. The population in 1850 was 16,919, and the product amounted to 281,389 bushels of corn; 189,509 of wheat; 58,125 of oats, and 5,919 tons of hay. The yield of wheat exceeded that of any other county in the state, with the exception of La Porte. There were 12 churches and 2 newspapers in the county, and 2,500 pupils in the public and 410 in private schools. The Wabash and Erie canal passes through Allen county. There are also a number of good plank roads, and it has communication with Pittsburg and Chicago, by the Pittsburg, Fort Wayne, and Chicago railroad, which passes through the capital. The county was organized in 1824, and received its name from Col. Wm. Allen, of Kentucky.

ALLEN, Bog or. Most of the Irish bogs lying to the eastward of the Shannon, and occupying a considerable portion of King's county, and the county of Kildare, are called the Bog of Allen. This name, however, is not applied to one great morass, as the bogs included in it are distinct from each other, and often separated by dry ridges of land. These bogs extend across the country from Wicklow Head to Galway, on the S., and from Howth Head to Sligo on the N., embracing an extent of 27 miles at the E., and 80 miles at the W. extremities.

ALLEN, EPHRAIM W., printer and editor of the "Newburyport Herald," born about 1780, died March 9, 1846. He published that journal for over 30 years, at one time uniting in his single person the functions of compositor, pressman, editor, and carrier.

ALLEN, ETHAN, American revolutionary partisan, born, according to some authorities, at Salisbury, Ct., according to others, at Woodbury, and according to Mr. Sparks, probably at Litchfield, in 1742, or thereabout, died at Burlington, Vt., Feb. 18, 1789. His parents, Joseph Allen and Mary Baker, soon after his birth em-

igrated to Cornwall in Vermont, where his 6 younger brothers and 2 sisters were born. As we have said, there are no precise data by which we can fix his age decisively, though it is probable his birth took place about 1742, as even his youngest brothers were men at the era of the commencement of the revolutionary contest, and were all decided whigs. Previous to the revolution, there existed a dispute between the colonies of New York and Massachusetts relative to their boundaries, and the debatable land included the whole of the present state of Vermont, which was claimed by New York. To this dispute New Hampshire and Connecticut were parties, and on more than one occasion, the quarrel, growing out of the absurd and conflicting grants of Charles II., nearly led to armed collision. Among the settlers in this disputed territory was the family of Ethan Allen, and in the controversy which grew out of the attempt to enforce New York law, he first became conspicuous. Actions of ejectment being brought, Allen was selected as agent to represent the settlers in the litigation about to commence at Albany. The decision was adverse to them, and they resolved to resist. They adopted Allen's own phrase—"that the gods of the hills were not those of the valleys." The New York authorities were everywhere set at defiance. Allen was made colonel of the armed force which was organized, and which not only protected the New Hampshire grantees but removed the New York settlers. This state of affairs remained unaltered until the revolution, New York maintaining her hostile attitude, and the Vermonters the possession of their farms. In 1775, when war with the mother country had become inevitable, the occupation of Ticonderoga was determined on, and the task confided to Allen, who set out at once at the head of his Green Mountain Boys, reaching Castleton May 7, 1775. A party was also detached under Capt. Herrick toward Skenesborough, and another under Capt. Douglass to Pantion in the vicinity of Crown Point. On the morning of May 10, Allen, who had previously been joined by Arnold, surprised Ticonderoga, summoning Capt. De la Plaine, who commanded the post, to surrender in the name of "the great Jehovah and the continental congress." By this *coup-de-main*, 2 officers, 48 rank and file, 120 pieces of artillery, and a large quantity of small arms, were captured, and the command of the Green mountains wrested from the English. The other enterprises were equally successful, Skenesborough, with an armed sloop, and Crown Point being also captured. A difficulty ensued between Arnold and Allen relative to the command, which, however, the latter maintained until he was relieved by the arrival of the Connecticut regiment, commanded by Col. Hinman, to whom he delivered his conquests. Allen then proceeded to Philadelphia, where the continental congress officially acknowledged his

services. He next joined Gen. Schuyler's army, and rendered valuable aid in Montgomery's expedition to Canada, but in an unfortunate demonstration against Montreal was captured and sent a prisoner to England; his old antagonist, Tryon, former governor of New York, contriving that he should suffer hardships unusual to an officer of his rank. After a long captivity in various places, he returned to America to be shut up in one of the dreary prison ships of New York, where, on May 8, 1778, he was exchanged. Kindly received by congress and by Washington, he was about to enter the military service again, when the old colonial troubles regarding Vermont were revived. Allen was now chosen general, and appointed to command all the militia of that state. In the mean time certain of the western counties of New Hampshire sought annexation to Vermont, sending a petition to that effect to the legislature, who referred the matter to the people. The governor of New Hampshire protested against this course, writing in the premises to the continental congress to interpose its authority. Allen was sent as the agent of Vermont to explain to congress the course of the state, and succeeded in the great object of his mission, which was the ultimate recognition of Vermont as one of the separate states. At about this time the English commanders in America began to meditate the restoration of royal authority in Vermont, and while the Vermont claim to self-government was in abeyance, sought to take advantage of the dispute. A tempting offer was made to Allen through Beverley Robinson, a well-known tory of the time, without any result, except that, by feigning negotiations, Allen was able to preserve the neutrality of the English authorities toward his mountaineers, who were consequently unmolested until nearly the end of the war. During this season of retirement Allen served in the legislature, and wrote, in addition to various political pamphlets, a work called "Reason, the only Oracle of Man," in which the Bible and the Christian religion are assailed. Before the end of the war he removed to Bennington, thence to Arlington, and subsequently to the vicinity of Onion river, where he resided till he died. He was twice married, and left a wife and several children behind him.—ISA, brother of Ethan, was born in 1752, and died Jan. 7, 1814, at Philadelphia. He served in the American army during the revolution, was a member of the constitutional convention of Vermont, and held many offices of trust under its state organization. In 1795 he went to France, where he purchased 20,000 muskets and 24 cannon, expecting to sell them to the state; but while returning home with a portion of them on board, he was taken and brought to England, under the accusation of furnishing arms to the Irish rebels. A lawsuit of 8 years duration followed, in which he was successful.

ALLEN, HENRY, a religious enthusiast, born at Newport, R. I., June 14, 1748, died at North-

ampton, N. H., Feb. 2, 1784. He held peculiar opinions on religious subjects, believing that the soul is an emanation from God, that our first parents were not corporeal before the fall, that there will be no resurrection of the body, and that men are not bound to obey the ordinances of the gospel. These doctrines he preached in Nova Scotia, about the year 1778. He published some treatises and sermons, and a book of hymns.

ALLEN, JOHN, archbishop of Dublin, born in 1476, and assassinated in 1584, by Thomas Fitzgerald, son of the earl of Kildare. After graduating, he was sent to Rome on church business, where he remained 9 years. On his return, cardinal Wolsey made him his chaplain and judge of his court as *legatus a latere*, in which position he was suspected of the most flagrant malpractices. In 1528 he received the appointment of archbishop of Dublin and chancellor of Ireland.

ALLEN, JOHN, M. D., a writer on physiology, politics, and metaphysics, born near Edinburgh, in 1770, died at Dulwich college, of which institution he was master, in 1848. After leaving the university, he became a lecturer on physiology in his native city, and at this time identified himself with the parliamentary reform movement. About the year 1800, he became acquainted with Lord Holland, and accompanied him in a journey through France and Spain. He afterward became his private secretary. His contributions to the "Edinburgh Review" were numerous and valuable, chiefly relating to the British constitution, and French and Spanish history; and his investigations determined, in a great measure, the views of that periodical on constitutional questions. The most valuable work proceeding from his pen is his "Inquiry into the Rise and Growth of the Royal Prerogative in England," published in 1830. He was under-secretary of the commissioners for treating with America, in 1806. Dr. Allen possessed a fine intellect, and had stored his mind with extensive information.

ALLEN, JOSEPH W., an English landscape painter of considerable merit, born at Lambeth, Surrey, in 1808, died Aug. 26, 1852, of heart-disease. He was for a time a schoolmaster, but soon gave up teaching, and went to London to study art. At this time, being in narrow circumstances, he used to paint signs and transparencies, to eke out a subsistence, and afterward took up scene-painting. He finally became principal scene-painter at the Olympic theatre, then under the management of Madame Vestris, and his productions contributed materially to the success of the pieces represented there. But the result of his engaging in this branch of the art was to corrupt his style in landscape painting. He had excelled in depicting quiet, rural scenery; but, when he began to employ the "brilliant effects" which should be confined to the stage, the results which he obtained were far inferior in fidelity

and truth to nature, to those exhibited in his earlier productions. On the whole, he does not rank high among English painters.

ALLEN, MOSES, a clergyman of Midway, Georgia, born in Northampton, Mass., Sept. 14, 1748, died Feb. 8, 1779. He enjoyed the friendship of James Madison, and was an ardent patriot. In 1778 his church was burned by the British troops. He rendered himself very obnoxious to them by his zeal for the revolutionary cause, and consequently, when captured, he was closely confined in a prison-ship. He endeavored to escape by swimming ashore, and was drowned.

ALLEN, PAUL, an editor and author of several poems, born at Providence, R. I., Feb. 15, 1776, died at Baltimore in 1826. After graduating at Brown university, he went to Philadelphia, and was employed to write for the "Portfolio" and "United States Gazette." In 1801, he published a small volume of poems. He also, about this time, superintended the publication of "Lewis and Clark's Travels." Soon after, he projected a "Life of Washington," and obtained a great number of subscribers; but such was his indolence that he made no effort whatever to fulfil the obligation which he had thus assumed. He then became successively the editor of the "Federal Republican" and the "Journal of the Times," but was unsuccessful in both capacities, sank into extreme poverty, and for a time his reason was obscured. He finally assumed the management of the "Morning Chronicle" at Baltimore, and conducted that journal until his death. In 1821, the "Life of Washington" appeared, published in his name, but really written by John Neal and another of his friends named Watkins. Allen merely contributed a portion of the preface. His poem of "Noah" was published in 1821, in 5 cantos. It had originally consisted of 25; but, having been placed in the hands of Mr. Neal for revision, he judiciously reduced it to its present dimensions. It now begins with the sending forth of the raven. The composition, as a whole, is pleasing, and contains some excellent lines, although many of the couplets, from their extreme literalness, have an air of burlesque.

ALLEN, SAMUEL, a London merchant, who died May 5, 1705, aged 70. He purchased from Mason's heirs in 1691 a large tract of land in New Hampshire, including Portsmouth and Dover, and extending 60 miles inland. He acted as governor of New Hampshire until the arrival of Lord Bellamont in 1699. His purchase involved him in a protracted lawsuit with the actual settlers, who produced an Indian title, subsequently found to be a forgery, but not until the Allen family had become extinct.

ALLEN, SOLOMON, American revolutionary soldier, born at Northampton, Feb. 23, 1751, died Jan. 20, 1821. He rose to the rank of major during the revolution, and assisted in putting down Shay's rebellion, at a later period. At the age of 50, he became a clergyman, and,

although deficient in intellectual culture, having enjoyed but scanty opportunities for acquiring knowledge in early life, he had remarkable success in his new sphere of exertion.

ALLEN, THOMAS. I. A famous mathematician, born at Uttoxeter, Staffordshire, in 1542, died in 1632. He received his first degree at Oxford, and in 1580 took up his residence at Gloucester Hall, where he devoted himself to the study of philosophy and mathematics. He afterward resided for some time with the earl of Northumberland, where he enjoyed the society of many learned men. His scientific attainments brought upon him the suspicion of dealing in magic, and he was accused of using the black art to promote a match between Queen Elizabeth and his friend the earl of Leicester. A great part of his valuable collection of manuscripts was presented to the Bodleian library. II. SIR THOMAS, an English admiral, who gained the first naval victory over the Dutch. In 1665, with a squadron of 8 ships, he defeated their Smyrna fleet, and, taking 4 vessels, compelled the remainder to take refuge in the harbor of Cadiz. III. THOMAS, an American clergyman, born at Northampton, Mass., Jan. 17, 1743, died at Pittsfield, Mass., Feb. 11, 1810. He graduated at Harvard college in 1762, and was ordained in 1764 at Pittsfield, of which town he was the first minister. Twice during the war of the American revolution he served as chaplain, and in the battle of Bennington he took an active part. He was minister of the same church from the time of his ordination until that of his death, a period of nearly 46 years, and during this time delivered many lectures, and preached 600 or 700 funeral sermons, in addition to his usual Sabbath discourses. He was a man of piety, energy, and determination, and of a warm and affectionate disposition.

ALLEN, WILLIAM. I. An American clergyman and author, was the son of Rev. Thomas Allen, the first minister of Pittsfield, Mass.; his mother was Elizabeth, daughter of the Rev. Jonathan Lee, the first minister of Salisbury, Conn., and was a descendant of Governor Bradford. Dr. Allen, the ninth of 12 children, was born in Pittsfield, Jan. 2, 1784. He was a graduate of Harvard college in 1802, and pursued the study of theology with Dr. Pierce, of Brookline. After being licensed in 1804 by the Berkshire association, he preached for some months in the western part of New York in various places. Upon his return he was appointed a regent in Harvard college, as successor to Dr. Channing; while in that office he prepared the first edition of his "American Biographical and Historical Dictionary," published in 1809, and containing notices of about 700 Americans. This was the first book of general biography issued in this country. In 1807 the author had prepared the lives of American ministers for the Rev. David Bogue's "History of Dissenters," published in London in 4 vols. The second edition of Dr. Allen's Dictionary ap-

peared in 1833, and contained more than 1,800 names. The third edition, published in Boston in 1857, is much enlarged, having biographies and notices of nearly 7,000 Americans, more or less distinguished. His connection with the university ceased in 1810, when he delivered the oration before the Phi Beta Kappa society, Washington Allston being the poet of the occasion. In October, 1810, he was ordained pastor of the church in Pittsfield, as his father's successor. In 1812, he married Maria Malleville Wheelock, daughter of President John Wheelock, of Dartmouth college. The legislature of New Hampshire in 1816 altered the charter of Dartmouth college, and created in its stead a university, of which Dr. Allen was made president in 1817. Upon an appeal to the supreme court at Washington, the rights of the college against the state were maintained in 1819, in a decision which has had a wide influence upon the subject of corporate rights. In the following year, 1820, Dr. Allen was appointed president of Bowdoin college, Me., as successor to Dr. Appleton, and retained that position until his resignation of the office in 1839, since which time he has lived in Northampton, Mass., engaged in various literary labors. Among these, is a collection of more than 10,000 words not found in dictionaries of the English language; nearly 1,500 being contributed to Dr. Worcester's dictionary (1846); more than 4,000 for Webster's (1854); and about 6,000 for the projected new edition of Webster.—His other chief writings are: Baccalaureate Addresses, 1823-29; Junius Unmasked, to prove that Lord Sackville was the real Junius; Accounts of Shipwrecks; Psalms and Hymns, with many original hymns, 1835; Memoirs of Dr. Eleazer Wheelock, and of Dr. John Codman, 1853; An Historical Discourse on the fortieth anniversary of the second church in Dorchester, 1848; a Discourse at the close of the second century of the Settlement of Northampton, Mass., 1854; Wunnisoo, or the Vale of Hoosatunnuk, a poem, with learned notes, 1856; beside a Dudleian lecture at Cambridge, and various sermons and reports. II. A celebrated pharmaceutical chemist and lecturer on chemistry at Guy's hospital, London, was born in 1770, and died in 1848. Having studied the science in the establishment of a London chemist, he afterward carried on the business on his own account. He was made a fellow of the royal society in 1807, and the results of his researches in company with his friend Pepys, were published by that body. He was remarkable in private life for generosity and benevolence. III. Chief justice of Pennsylvania before the war of the revolution. He was the son of William Allen, a distinguished merchant of Philadelphia, and succeeded his father-in-law, Andrew Hamilton, as recorder of that city in 1741. He was opposed to the movement of the colonies against the mother country, and before the revolution broke out, removed to England, where he died in 1780. He

was a friend to literature and the fine arts, and assisted Franklin in establishing the college at Philadelphia.

ALLEN, WILLIAM HENRY, an officer of the American navy, born at Providence, R. I., Oct. 21, 1784, died at Plymouth, Eng., August 15, 1813. Against the wishes of his father, William Allen, a major in the revolutionary army, he entered the navy as a midshipman in 1800. After serving with credit in various different vessels, and in different capacities, he was in 1809 appointed first lieutenant of the frigate United States. Oct. 25, 1812, he distinguished himself in the action between this vessel and the British frigate *Macedonian*, which resulted in the capture of the latter. Lieut. Allen was intrusted with the command of the prize, which he carried to New York. He was afterward promoted to be master commandant, and received the command of the brig *Argus*, in 1813. In this vessel he conveyed to France the American minister to that country, Mr. Crawford, and having discharged this duty, proceeded to cruise in the neighborhood of England. He took a great many prizes, and captured property to the amount, as was estimated, of \$2,000,000. On August 14, he fell in with the British brig *Pelican*, and in the action which ensued, and which resulted in the capture of the *Argus*, was mortally wounded. His leg was amputated at sea, and he was carried to Plymouth, where he died on the day after the action. He was eagerly desirous of glory, brave in action, and courteous in his manners.

ALLEN, WILLIAM HOWARD, an American naval officer, born in Hudson, New York, in 1792, was 2d lieut. of the *Argus*, Capt. Allen, when she was taken by the *Pelican* on the coast of England in 1813, and commanded in the latter part of the action when both his superiors had been carried below wounded. He was killed in the vicinity of Matanzas, in Nov. 1822, while gallantly leading a boat attack upon a piratical squadron. He had attained a high reputation in the navy, and fell at the age of 30. His native town erected a monument to his memory.

ALLENDE J., a Spanish officer, of Mexican birth, to whom the Mexican revolutionist Hidalgo first intrusted his plan of revolt against the Spanish power in Sept. 1810, and the first man of rank who joined the curate of Dolores in his first demonstration. Allende was at that time a captain of the Mexican regiment of La Reyna, and brought to the service the military skill of which Hidalgo was so much in need. When the regiment of La Reyna and that of Celaya joined Hidalgo, Allende was able to give some consistency to the native levies, and enabled them to storm the famous Alhondrega of Guanajuato. After Nov. 29, 1810, Allende joined Hidalgo, and was able to replace the guns which had previously been lost at Aculco, by bringing others from San Blas, the great naval station of Spain on the Pacific, of which Morelos had obtained

possession. The whole of these guns, though of heavy calibre, were borne by the naked Indians over the Cordilleras. Contrary to the advice of Allende, Hidalgo determined to fight the enemy, and was defeated. Allende brought off the fragment of the army, and was arrested near Saltillo, on the very ground of Gen. Taylor's victory over Santa Anna, by the treachery of an old comrade named Elizondo, and shot with his chief at Chihuahua, July, 1811. After Hidalgo had defeated Truxillo, Allende was anxious to march at once on Mexico, and Hidalgo's refusal has been considered the cause of the failure of this first attempt at revolution. Allende had much power over the natives; so much, indeed, that in more than one of the early actions of the revolution they charged up to the mouths of the Spanish artillery, which they thought to muffle by stuffing their straw hats into their mouths.

ALLENT, PIERRE ALEXANDRE JOSEPH, a French general, born at St. Omer in 1772, died July 3, 1887. In 1792 he served as a simple artilleryman, on the occasion of the bombardment of Lille. He was admitted to the *corps de génie*, and in 1795 promoted to the rank of captain; subsequently he was appointed *chef d'état major du génie* of the armies of Mentz and the Danube. Under the empire he was promoted to the grade of *chef de bataillon* or major, and put at the head of the committee of fortifications. In 1814 he distinguished himself by his valiant exertions on behalf of the defence of Paris. After the restoration, he became chief of the staff of the national guard and councillor of state. In 1832 he was raised by Louis Philippe to the dignity of peer of France. Gen. Allent had received a finished classical education, and distinguished himself in the field of literature, not only by his works on military subjects, but also by an essay on the moral and political influence of the art of painting, which, in 1798, gained a prize at the national institute of France.

ALLENTOWN, the seat of justice of Lehigh county, Pennsylvania; situated on the west bank of the Lehigh river, 18 miles above its junction with the Delaware. The first house was built by William Allen in 1750, on a grant of 20,000 acres received from William Penn. Around him were large tracts owned by Philadelphians, called "Gentlemen's land," and used by them as hunting grounds. William Plumsted, of the governor's council, built his "hall" upon one of these tracts called Egypt, which was afterward known as "Whitehall." Upon this, on the site of the present "Egyptian church," was built the first Lutheran church in America, on the west side of the Lehigh. In 1762 the town was laid out and called Northampton, the name of the county it then belonged to. It contained 13 families. In 1776 there were 54 houses, of which 7 were taverns. Early attempts were made to remove the county seat from Easton to Northampton, the latter being represented as the centre of the county, and the region be-

tween it and Easton, now one of the most highly cultivated portions of Pennsylvania, "as an unbroken wilderness without inhabitants or water." In 1812 Lehigh county was established and Northampton was made the county town, having been incorporated as a borough the year previously. In 1888 the name was changed to Allentown. In 1880 abundant supplies of excellent water were introduced from a large spring near by, on the bank of the Little Lehigh; and from this time the place has rapidly increased in population. By a railroad extending up and down the valley of the Lehigh, it is connected in one direction with the anthracite coal region at the head waters of this stream, and in the other it has direct communication with New York and Philadelphia, each of which by the way of Easton is about 100 miles distant. The construction of another railroad of 86 miles in length is just commenced, which will connect the Lehigh valley with that of the Schuylkill above Reading, and complete the last link in the most direct line of communication between New York city and the south-west. By these railroads and the Lehigh canal, Allentown is made a very important central point for supplies of iron ores and anthracite. Several large blast furnaces are already in operation; and the business must become far more extensive, although this valley even now produces one-tenth of all the iron manufactured in the United States. The population of Allentown are mostly of German descent, and the German language is still commonly spoken. The newspapers are in both the German and English languages; the courts are conducted, and the records are kept in both. The population in 1857 is between 8,000 and 9,000.

ALLERSTAIN, or HALLERSTAIN, a German Jesuit, born at the beginning of the 18th century, died about the year 1777. He went as missionary to China, where his mathematical and astronomical attainments attracted the attention of the Chinese emperor Kien-long, who promoted him to the rank of mandarin, and put him at the head of the mathematical department of the government. Allerstain obtained from the statistical department the Chinese census for the years 1760 and 1761, from which it appears that the population, which in the first-named year was 196,837,977, rose in the next year to 198,214,624. These pieces of information, translated by Father Allerstain himself from Chinese into English, were received in Europe in 1779, and are considered very valuable, especially as they corroborate the accounts of the celebrated missionary Amiot, and establish the fact of the progressive increase of the Chinese population. But the publication of the census has been discontinued by the Chinese government out of fear of revealing the secret of its strength. The census procured by the energetic activity of Allerstain is included in the *Description générale de la Chine*.

ALLESTAR, a town in the peninsula of Malacca, on the bank of the Queda river, in the

kingdom of Queda or Kedda. It has 2,000 dwellings, among them many fine buildings, and was at one time the residence of the king.

ALLESTREE, or ALLESTREY, RICHARD, an English divine, a native of Uppington, in Shropshire, born in 1619, died in 1680. During the civil war he joined the king's party, and was at the battle of Keinton-field in Warwickshire. At the conclusion of the war he took orders, and was afterward one of those expelled when the parliament, in 1648, sent visitors to Oxford to demand the submission of the university. He found an asylum in the family of Lord Newport, Shropshire, and after the battle of Worcester, he was fixed upon by the royalists as a proper person to convey despatches and have a conference with the king at Rouen. Soon after the return of Charles, he was made canon of Christ's church, king's chaplain, regius professor of divinity, and in 1665 promoted to the provostship of Eton, which he resigned 1678. He was a graduate of Oxford, where, in 1684, 40 of his sermons were published.

ALLETZ, PIERRE EDOUARD, a French writer, born at Paris in 1798, died at Barcelona in 1850. Throughout his life he was the personal friend of Guizot and Lamartine. From 1844 to the overthrow of the government of Louis Philippe, he was consul-general of France at Geneva, and after that event until his death he held the same office at Barcelona. His principal literary work which gained him distinction was published at Paris in 1832 under the title of *Esquisses de la souffrance morale*. The other productions of his pen consist in a dramatic poem, *Walpole*, and in miscellaneous, historical, ethical, political, and poetical writings.

ALLEVARD, a town of France, on the river Ozeins. It is noted for its iron mines, which yield 4,500 tons a year, and as the birth-place of the chevalier Bayard.

ALLEY, WILLIAM, an English prelate, born at Wycombe, Bucks, in 1500, died in 1570, a graduate of Eton college and King's college, Cambridge. He afterward studied at Oxford; but as he was a zealous advocate for the reformation, he retired during Mary's reign into the north, where he kept a school and practised physic. Under Elizabeth he was made lecturer at St. Paul's, and in 1560 bishop of Exeter. He wrote the "Poor Man's Library," containing sermons, &c., besides a commentary on St. Peter's First Epistle, and a translation of the Pentateuch in the bishop's Bible.

ALLEYN, EDWARD, an English actor and play-house proprietor, was born in London in 1566, and died at Dulwich college, of which institution he was the founder, in 1626. He was the friend of Jonson and Shakspeare, and acquired a large fortune by the theatres which he owned in London, and by his mastership of the bear-gardens. He finally settled down quietly at Dulwich with his wife, contenting himself with the same allowance of food and clothing which was allotted to each of his pensioners. At his death he left property for the

endowment of 20 almshouses, besides legacies to his wife and relatives. His munificent charities, and not his skill as an actor, have perpetuated his fame.

ALLGAIER, JOHANN, a noted chess-player and German writer on the game, lived during the greater part of his life in Vienna, but died at Prague in 1826. For some years he was a captain in the Austrian service. His work, *Anweisung zum Schachspiel*, was first published at Vienna in 1795. It has since gone through 7 editions, the last and best of which appeared at Vienna in 1841. A peculiar method of opening the game received from him the name of the *Allgaier gambit*.

ALLGEMEINE ZEITUNG, one of the oldest German daily newspapers, established by the publisher Cotta, in Augsburg, at the time of the first French revolution. It has no special character, and never had any, opening its columns to all opinions. It publishes no leading articles, but is made up of correspondence, which it receives from almost all parts of the world, and of news extracted from other papers. It is often employed by governments and diplomatists, especially by those of Germany and northern Europe, as a vehicle of bringing news unofficially before the public, as well as of discussing questions and attacking each other. On this account the *Allgemeine Zeitung* enjoys a great consideration among continental politicians. It forms one of the best political and diplomatic records of the century. A part of its columns is also devoted to objects of varied general information, to scientific disquisitions, and reviews of the prominent literary works of most European nations. This part of the paper is made up with ability and conscientiousness.

ALLIER, a department of France, part of the old province of Bourbonnais. It contains 2,828 square miles of territory, and had in 1851 a population of 336,758. The river Allier flows through the department. Its capital is Moulins. Allier is the see of a bishop.

ALLIGATION, the name of a rule that teaches the solution of questions concerning the compounding or mixing together of different ingredients, or ingredients of different qualities or values. Alligation is generally divided into medial and alternate. Alligation medial, from the rates and quantities of the simples given, discovers the rate of the mixture. Alligation alternate, being the converse of alligation medial, from the ratio of the simples, and ratio of the mixture given, finds the quantities of the simples.

ALLIGATOR, a large carnivorous, amphibious reptile, of the saurian family, peculiar to America. The name was first given to this animal by the English colonists of the southern portion of what are now the United States; but has been gradually extended to all the varieties of the family, called caymans, crocodiles, jacarás, &c., by the Spaniards, Portuguese, and Indians of the southern continent. The alliga-

tor was formerly believed to be identical with the crocodile of the old world; but there have subsequently been found to exist distinctions, which are, however, merely specific and not generic differences, and are not, therefore, sufficient to constitute a distinct variety. The generic characteristics of the family are long flat heads, thick necks and bodies, protected by regular transverse rows of square long plates or shields, elevated in the centre into keel-shaped ridges, and disposed on the back of the neck into groups of different forms and numbers, according to the species. The mouth is extremely large, extending considerably behind the eyes, and furnished in each jaw with a single row of conical teeth, all of different sizes, and standing far apart from one another. The eyes are placed on the upper surface of the skull, very near to each other, and provided with three eyelids. The feet have five toes before, long and separate; four behind, more or less perfectly connected by membranes; the interior toes only, on all the feet, being provided with claws. The tail is of great length, slender, strongly compressed at the sides, and surmounted toward its origin by a double series of keel-shaped plates, forming two upright denticulated crests, which, gradually converging toward the middle of the tail, there unite and form a single row to the extremity. This tail is the great instrument of progression to the animal when in the water, and its great weapon of defence when surprised on land. Both species, the alligators and crocodiles, hibernate, or retire to rest, taking no food during the winter months; the Nilotic crocodiles, according to Pliny, withdrawing into caves and holes in the banks, while the alligators of America bury themselves in the mud of the stagnant rivers, which they frequent. The principal food of both alligators and crocodiles is fish, but they watch for, capture, and devour all land animals, which descend to the banks of the waters, which they frequent in order to drink, or which endeavor to pass across them. Even men are constantly seized by these fierce and voracious reptiles; and it is even said that in the rivers of the Carolinas, Louisiana, and the Mississippi country, their favorite food is the flesh of the negro, which they are supposed to prefer to all other diet. It is alleged that the musky fluid secreted from the glands of the throat, acts as a sort of bait, and attracts the fish on which they prey, within reach of their terrible snapping jaws. The alligators are distinguished from the true crocodiles, according to Cuvier, by having the head less oblong than the crocodiles. Its length is to its breadth, measured at the articulation of the jaws, as three to two; the teeth are unequal in length and size; there are at least nineteen, sometimes even as many as twenty-two, on each side in the lower, and nineteen or twenty in the upper jaws. The front teeth of the under jaw pierce through the upper, at a certain age; and the fourth from the front, which are the longest of all, enter

into corresponding holes of the upper jaw, in which they are concealed when the mouth is closed. The hind legs and feet are round, and neither fringed nor pectinated on the sides; the toes are not completely webbed, the connecting membrane only extending to their middle; and finally, the post-orbital holes of the cranium, so conspicuous in the true crocodiles, are very minute in the alligators, or even entirely wanting. Further than this, it is observable that the alligators are rarely, if ever, to be found in running streams, preferring stagnant ponds and the creeks of large rivers, in which, particularly in South America, they may be seen in countless numbers, protruding their large flat heads through the leaves of the nymphæa, pontederia, and other aquatic plants, which cover the surface of the water, and watching for their prey; or sometimes basking in the sun, or sleeping on the banks, while the crocodiles affect swift rivers. They never come on shore, except during the hottest part of the day, and always retire to the water on the approach of night, during which they are extremely active in search of their food. They generally lay from fifty to sixty eggs, in one place, of about the same size as those of the goose, which they cover up with sand, and leave to be hatched by the heat of the sun, never, however, removing to any great distance. When the young ones come forth, they are about five or six inches long, and are immediately conducted to the water by the female alligator. Seldom more than half the brood reach the water, the remainder being devoured by the male alligators, and by various ravenous fishes; while multitudes are destroyed in the egg by the vultures, which watch the female alligator when she goes ashore to deposit her eggs, and, when she returns to the water, take advantage of her retreat to banquet on her treasure. It is remarked that the true alligators never leave the fresh water, while the crocodiles frequent the mouths of the large rivers, and swim out into the open sea, passing between different islands at considerable distances. So perfect a characteristic is this of the two subgenera, that the animal of the West India islands, which swims out into the salt water, is distinctly a crocodile, varying from all the other American species, and exhibiting the modifications which belong only by right to those of the old world.—The principal American varieties are, 1. THE ALLIGATOR, properly so called, *crocodilus lucius*, of Cuvier. It inhabits the waters of the Carolinas, Mississippi, and the other southern states. It grows to the size of 14 or 15 feet; its head is one-seventh of the entire length, and half as broad at the articulation of the jaws as it is long. It has these distinguishing modifications from the other American crocodiles. The snout is flattened on its upper surface, and slightly turned upward at the extremity; the sides of it are nearly parallel, and the nose forms a regular parabolic curve. It is this similarity to the head of a

pike whence it has its name *lucius*. It is said to be far more fierce and voracious than the South American varieties, often seizing and destroying men and large land animals, the bodies of which it conceals under the banks until they begin to putrefy, when it draws them ashore and devours them; for its teeth, unfitted to mastication, cannot cut the flesh in its crude state. The female of this species is remarkable for her maternal attention to her young, never losing sight of her nest until the little alligators are excluded from the shell. Bartram the American naturalist found great numbers of these amphibia in a mineral spring near the Musquito river, in Florida, though the water, at its exit from the earth, was nearly at the boiling point, and strongly impregnated with copper and vitriol.—2. THE CAYMAN, *crocodilus palpebrosus*. This variety is distinguished by its bony eyebrows, which form knobs as large as the fists of a man. Its toes are almost entirely free from connecting membranes, and its skull has no post-orbital apertures. It is smaller and less fierce than the others of its species; and the female takes no heed to her eggs when they are once deposited. This is the alligator of Guiana and Surinam.—3. THE CROCODILE OF BRAZIL, *crocodilus trigonatus*. A variety of the above species, scarcely distinguishable from it, but suspected, although having all the characteristics of the American subgenus, to be of African origin. The only distinctions which divide it from the cayman are a long ridge between the orbits running toward the snout, a notch in the posterior margin of the skull, and a peculiar arrangement of the cervical plates.—4. THE JACARÉ, *crocodilus sclerops*. This is the alligator of all tropical America, particularly numerous in Brazil. Its head is more elongated than that of the North American alligator, the sides converging toward the snout so as to form nearly an isosceles triangle. The bones of the skull have a rough scabrous appearance, as if diseased; and the orbits of the eye are surrounded by prominent rims of bone, connected by a ridge between the orbits, constituting, together, the resemblance of a pair of spectacles, whence its name. It grows to a very large size, attaining even to 18 feet, its length being above 8 times that of the head. It never attacks men, or even dogs, whether on land, or in passing rivers, unless they be in the neighborhood of its nest; nor does it then prey on the carcases, feeding only on fish and waterfowl. These are the several American alligators, as distinguished from the crocodiles of the old world, as yet characterized and classified. The bony armor of all the species is their protection against all enemies, even against the artificial weapons of man, being proof against the rifle ball, which can only take effect when it strikes the eye, or the unarmed skin on the belly and about the insertion of the forelegs. The construction of this armor, however, prevents them from turning rapidly, when on dry

land, so that their pursuit is easily avoided. Their flesh, and even their eggs, although both have a strong musky flavor, are said to be both wholesome and nutritious. The American alligators have neither their allied protector bird, the spur-winged dotterel, nor their characteristic enemy, the ichneumon, which protect or assail their congeners, the crocodiles of the Nile. The hideous aspect, disgusting habits, abominable smell, and odious roar of these vast reptiles, added to the repulsive and awful character of the regions they inhabit, have rendered them objects of undue apprehension. They are, in fact, rather subjects for the antipathy and disgust, than for the fears of man.

ALLIGATOR SWAMP, a large tract of marsh in North Carolina, covering nearly the entire peninsula between Pamlico and Albemarle sounds. It is said that the surface of the swamp is higher than the surrounding dry ground, and that it holds the water by capillary attraction.

ALLIOLI, JOSEPH FRANZ, German theologian, born at Sulzbach, Aug. 10, 1793. In 1816 he took holy orders and received the degree of D. D. In 1818 he went to Vienna, where he remained two years, engaged in the study of the eastern tongues, and then visited Rome and Paris. In 1825 he was appointed Biblical professor at Landshut. The following year he was removed to the university at Munich, of which he was appointed rector in 1830. Ill health obliged him in 1835 to resign his professorship, and he has since been provost of the cathedral at Augsburg.

ALLIONI, CARLO, an Italian botanist, born at Turin in 1725, died in 1804. He graduated at the Turin university, and subsequently was attached to it as professor of botany. He was a man of extensive knowledge, a member of the institute of Bologna, of the royal societies of London, Göttingen, Madrid, and of other learned societies. His works, chiefly botanical, are numerous; but the most prominent of them is his *Piedmontese Flora*, in 8 folio volumes, with plates. His name, "Allionia," was given by Loeffling to a genus of plants.

ALLISON, FRANCIS, D. D., born in Ireland in 1705, died in Philadelphia in 1777. He was a graduate of the university of Glasgow, and, on coming to America, distinguished himself for his zeal in the cause of learning in Philadelphia, where he held the office of vice-provost of the college from 1755 to the time of his death.

ALLISON, THOMAS, an English traveller, and, for some time, boatswain in the Russian navy. He lived toward the end of the 17th century. He wrote an account of his travels and observations in Russia, which has been corroborated by the accounts of subsequent travellers. His book contains much valuable information about the climate, the inhabitants, &c., of Russia, and was published at London in 1699.

ALLISONIA, a flourishing village on the river Elk, Franklin co., Tenn. It is a station of considerable importance on the railroad from

Nashville to Chattanooga, being situated about midway between them, and contains an extensive cotton factory, which cost \$100,000. It also possesses the finest water-power in the state.

ALLITERATION, an ornament of language, chiefly used in poetry, and consisting in the use of words commencing with the same letter in the same line. In the middle ages this conceit, like so many others, was much in vogue. Take for example such a Latin verse as this,

Propterea properans proconsul, poplite prono.

In English poetry Spenser uses this fashion prodigally; his principal followers in the practice of alliteration have been Pope and Gray.

ALLIX, JACQUES ALEXANDRE FRANÇOIS, a French general of artillery, born at Percy, in Normandy, Sept. 21, 1776, died Jan. 26, 1836. His spirited conduct, while with the army of the north, was favorably noticed in a decree of the French convention, and he was only 20 years old when he was promoted to the rank of colonel. He took a distinguished part in the battle of Marengo and the expedition of St. Domingo; but, being a sincere republican, Napoleon did not pay much attention to him, and Allix offered his services to Jerome, while king of Westphalia, who conferred upon him the dignity of general. On the occasion of the invasion of France by the allied powers, he hurried home to defend his country, and during the hundred days he had charge of the fortification of St. Denis. Proscribed in the ordinance of July 24, 1815, he took refuge in Westphalia, but was recalled to France by the decree of 1819, and reinstated in his position. General Allix wrote various essays on military subjects. He is also the author of a *Nouveau Système du Monde*, written with the ambitious view of refuting the Newtonian theory.

ALLIX, PIÉRRÉ, a French protestant divine and writer on theology, was born at Alençon in 1641, and died at London in 1717. He held the office of minister of the church at Rouen until the revocation of the edict of Nantes, when he fled to England. Here he acquired a complete knowledge of the English language, and composed "A Defence of the Christian Religion" in that tongue, which he dedicated to King James. He was afterward made a doctor of divinity, and received the office of treasurer of the church of Salisbury.

ALLOA, a seaport town in Clackmannanshire, Scotland, 27 miles from Edinburgh, on the north side of the Frith of Forth. Pop. in 1851, 6,676. It has an excellent harbor, and a dry-dock capable of containing the largest ships. Brick and tile are manufactured in large quantities, and the glass-works produce every quality of glass-ware. There are several extensive distilleries in the vicinity, and the ale of its breweries has a high reputation.

ALLOBROGES, a people of Gaul, whose territory comprehended what is now called Dauphine, Piedmont, and Savoy. Their principal

town was Vienna, now Vienne, on the left bank of the Rhone. They were brought under the dominion of Rome by Fabius Maximus, and ever after remained faithful to their conquerors. Their name arose from the physical characteristics of the country which they inhabited, and signified "dwellers on mountains."

ALLODIUM, in law, signifies a landed possession, freed from all feudal tenure or service. Several explanations have been given of the etymology of the word, but they are all only more or less ingenious conjectures. In early ages the allodium was the most desirable property. In process of time the anarchy consequent on the want of a supreme power made the mutual protection and support of lord and vassal more expedient; and in England all land passed into fee land, the king being suzerain of the whole country. The theory still remains in slight services, or in small fee farm rents; and in the escheat to the sovereign for want of heirs. In France, before the revolution of 1789, the actual services still remained; not nominal, but real, unequivocal, and in some cases odious burdens; serfdom, indeed, was only abolished by an express decree of the assembly. *Nulle terre sans seigneur* was a maxim of law, and the tyranny and monstrous oppressions of the local seigneur proved that it was no dead letter. In Germany the allodium yet remains to be perfected. The system of man service is not yet exploded, such as the right to several days' work in harvest, or at hunting parties; although this is much modified, particularly in Prussia, of late years. The conversion of the feudal soil into allodial land is effected either by means of an annual fee rent, or of a fine payable at once, in lieu of all customary services. Even in 1595 the last traces of bondage and serfdom in England were not obliterated. A patent to Sir Henry Lea was issued by the crown, giving power to this individual, as commissioner, to enfranchise a limited number of crown villeins, and to seize all the rest of the estates acquired by parties in villanage, to his own use. This monstrous commission, which was, like many other similar enormities, a means of enriching some needy or profligate courtier, at the expense of the people, could not have operated except in the case of crown serfs: the doctrine *nullum tempus occurrit regi*, coming into operation against the unfortunate landholders whose title was barred by the impurity of their blood. In the case of subjects, villanage had become obsolete.

ALLOMAKEE, a county in the N. E. extremity of Iowa, on the borders of Minnesota, is separated from Illinois by the Mississippi river, and contains an area of 660 square miles. The Yellow river forms its S. boundary, and the upper Iowa intersects it. The soil is productive, and the surface undulating woodland and prairie. It contained in 1856 a population of 7,709, and produced 1,191 bushels of corn, 84,865 of wheat, 128,827 of oats, 4,819 tons of hay, and 68,990 lbs. of butter. Columbus is the capital.

ALLOPATHY, a word created by homœopaths to distinguish other systems of medical practice from their own. Having adopted the opinion that "like cures like," or *similia similibus curantur*, as the fundamental principle of his doctrine, Hahnemann gave to his own system the name of "homœopathy," derived from the Greek *ὅμοιον*, like, or similar, and *πάθος*, disease, and to other systems the name of "allopathy," from *ἄλλου*, other, or different, and *πάθος*, disease. According to Hahnemann, there are three leading doctrines in medicine, two of which are erroneous, and one alone true. One he names "enantiopathy," or the doctrine of *contraria contrariis curantur*, of which Galen is the founder; the other he names "allopathy," or the doctrine of "revulsion," substituting one disease to cure another, which doctrine was introduced by Theophrastus Paracelsus; the third and last he names "homœopathy," or the doctrine of *similia similibus curantur*, of which he himself is the founder. To this doctrine he adds a certain theory with regard to *psora* and other entities which cause infection; and a second theory concerning the "dynamization" of medical substances by means of "trituration," "succussion," and infinitesimal division or dilution. The old schools of medicine do not receive the theories of Hahnemann, as science; nor do they follow any sectarian leader systematically. Galen's doctrine is not received for more than it is worth in practice; Paracelsus' theory is treated with the same reserve; and Hahnemann's views are not deemed capable of scientific demonstration. Meanwhile, the sects and so-called "doctrines" of "homœopathy," "enantiopathy," "allopathy," "hydropathy," and other exclusive systems of therapeutics, divide the world of medicine, and proclaim the imperfections of all one-sided views of science. Anatomy and surgery, microscopical observations of organic structures, physiology, pathology, chemistry, pharmacy, botany, materia medica, and physical science are nevertheless, making daily progress toward perfection, and the art of healing is deriving new supplies of information and assistance from the developments of all these tributary streams of knowledge. Men of inquisitive intelligence set up no one-sided doctrine of therapeutics, but examine all new developments of truth in science, testing them by practical experiment, as far as possible, and giving to the world the benefit of their experience and knowledge, with the reasons which support or militate against particular theories and doctrines, put forth, from time to time, by those who are ambitious to improve the art of healing. The chief difference between homœopaths and those whom they call "allopaths" and "enantiopaths," may be summed up in a few words: the "principle" of "like cures like," is deemed absolute and universal by the former, to the exclusion of all others; the latter admit the relative value of the so-called "principles,"—*similia similibus*,

contraria contrariis, and the revulsive means of action; but none of these are deemed worthy of the name of principle or science. The homœopaths believe in the "dynamization" of drugs by "succussion," "trituration," and infinite or indefinite division and dilution; the others say, "not proven." The microscopical tenuity of miasmatic molecules and other subtle poisons, is not the result of succussion or trituration. The abuse of large doses of medicine, and more especially of mercury, is condemned by homœopaths; and all intelligent physicians say, "amen." The effect produced by medicines is known by practical experience, through long ages of observation, but the *modus operandi* is still too little understood to warrant the assumption of a doctrine of any kind. The human being is not yet dynamically understood; its modes of action in the physical organism, are abundantly mysterious, and until these problems are completely solved, the art of healing must be founded chiefly on a knowledge of effects; which knowledge is obtained from practical experience alone.

ALLORI, ALESSANDRO, a painter of Florence, born 1585, died 1607. He was one of the best artists of the anatomical school.—CRISTOFANO, son of the preceding, born 1577, died 1621. He excelled in the coloring and delicacy of execution of his pictures.

ALLOTMENT SYSTEM, is the cultivation of small portions of garden land by agricultural laborers, and sometimes by urban artisans in their times of leisure. It is one of those plans that have originated in England in a desire to better the condition of the laboring classes, and first began to be used extensively in 1830. The freehold land system has, however, rather superseded the allotment system in the favor of the urban operatives of England, as the former offers him a freehold plot whereon a house of his own can be built, while the latter only gives him a small piece of land which he rents for garden purposes. Garden allotments still continue to be popular with the agricultural population of England, who have no hope of being able to form freehold land societies. The best size of each plot is judged to be from 20 to 40 rods. The allotment system, if universally carried out, is not favorable to the highest productiveness of land.

ALLOWAY KIRK, remarkable as the scene of Burns's poem of Tam O'Shanter. The cottage in which the poet was born is in its vicinity. An elegant monument has been erected to the memory of Burns. At its base flows the river Doon, and almost within its shadow are the melancholy ruins of the kirk.

ALLOY. As commonly applied, this word is used to signify a compound of two or more metals fused together, and its origin is traced to the French word *allier*. For its ancient and true signification, however, we must refer to the time of the alchemists, who first introduced it. The metals, with them, were called "noble," and "base," and when one of the latter was

brought into combination with one of the former, the nobility of this was said to be "alloyed," or "alloyed." By an old writer, alloy is described as "the proportion of a baser metal mixed with a finer or purer;" and assayers at this day still use the term in this sense. Using the word in its common signification, the first point of interest that presents itself is the indefinite multiplication of metals that may be produced by their different combinations; for even with proportions of the original metals slightly varying, products are obtained of different qualities. Some metals, of little value in their pure state, are also made useful by the new properties they assume in combination with others. Most alloys are mixtures of no exact proportions; the metals dissolve in one another indefinitely, as sulphuric acid unites with water. Some, however, appear to be combinations in equivalent proportions, and of these there are found examples in nature, as of the native gold, which occurs combined with silver—4, 5, 6, or 12 atoms of gold to one of silver, but never a fractional part of an atom of gold. The tendency of some alloys to take crystalline forms seems also to indicate definite combinations. But the metals of other alloys, far from thus perfectly uniting, are with difficulty brought into combination, and even tend to separate from each other while in the melted state, and in some instances to form layers which contain different proportions of the metals. The column of the Place Vendôme in Paris, was cast from cannon captured in Germany by the French. The contract with the founder was, that it should be of a composition agreed upon. When completed, the first assays gave a much larger proportion of tin than the alloy should contain, and the contract would have been repudiated, had not a large number of assays, made by a committee of chemists, proved that while some portions contained an excess of tin, others contained an excess of copper.—It has been proposed, in order to remove the confusion arising from the indefinite mixtures of metals, to limit the application of the term alloy only to those combinations that are in atomic proportions, but we imagine greater confusion would be involved in thus attempting to restrict its meaning, for substances hardly differing in composition, and not at all in their general qualities, would have a different general name, to be fixed only by the scientific chemist. The changes in the physical properties of metals that are effected by their combinations, are of great variety, and cannot, before experiment, be at all anticipated. Even slight variations in the proportions of the metals involve great changes in the product of their union. The specific gravity of the alloy may be greater or less than the mean of that of the component parts. In the alloy of gold and tin it is greater; in that of gold with silver, lead, iron, or copper, it is less. Alloys are always more fusible than the metal most difficult to melt that enters into their combination, and gen-

erally more so than the most easily melted one. The fusible metal discovered by Sir Isaac Newton melts at different temperatures between 198° and 210°F. It is composed of bismuth 5 or 8 parts, lead 2 or 5, and tin 3 parts. These metals melt, the first at a temperature of 476°, the second at about 600°, and the last at 442°.—Alloys conduct heat and electricity less perfectly than their pure metals. They are also generally more brittle. But their power of cohesion is usually greater than that of either of the metals, the alloy resisting more strongly the force applied to draw a bar apart, than does a bar of either one of the metals composing it. The color which the alloy will take is as uncertain as any of its other properties. A large addition of zinc will not make its alloy with copper whiter, but will give it the rich pinchbeck hue. Alloys composed of metals of different degrees of fusibility may sometimes be separated into their distinct metals by heating to the melting temperature of one of them. An alloy of tin and copper may be thus treated, the tin melting at 442°, and the copper at 1,996°. This "sweating process," called *eliquation*, is used to separate silver from copper. Lead is first melted in with the other metals, and when sweated out it takes the silver along with it. This alloy is then separated by another process, depending on the easy oxidation of the lead.—An interesting property of the metals, which may seem somewhat opposed to the one just described, is the tendency of one, when melting, however fusible it may be, to cause any other in contact with it, however infusible, to melt also. The easily melted metals act like fluxes upon those most difficult to fuse. The surfaces of the latter are washed away, till nothing solid is left. Platinum, which is among the most difficult metals to melt, is very susceptible of injury from this cause. The costly crucible, and other vessels of the chemist, may be ruined in an unguarded moment by contact with other metals highly heated. On this property is based the principle of soldering two pieces of metal by means of a third. Their surfaces are fixed together by interposing an alloy, which is more fusible than either of the metals to be joined; and this must also consist of metals which are disposed to unite and form a new alloy with them. Pieces of gold are soldered together with an alloy of gold with silver or with copper; articles of silver with an alloy of silver and copper; of copper, with an alloy called hard solder, which is brass containing a large proportion of zinc.—Another interesting property of alloys is the different effects produced by the order in which their component parts have been mixed, the proportions continuing the same. Ten parts of antimony added to 90 of tin and 10 of copper, make a compound of very different physical properties from that produced by adding 90 parts of tin to 10 of copper, and 10 of antimony. This appears to be analogous to what we witness in vegetable chemistry, as in the identity of composition in

starch and sugar.—The number of alloys already in use are very numerous, and new valuable combinations are continually discovered. Those alone of copper with zinc form a long list, in which we find the names of many very useful compounds, some of which have been known from the time of Tubal Cain, who was probably among the earliest workers in brass; and others only slightly differing in composition, and still of great importance, are the discoveries of yesterday in comparison; such, for instance, as Muntz's yellow metal for sheathing, a compound of 40 to 60 of zinc, with 60 of copper. Pewter has long been a useful, though a very homely alloy. It is made of different combinations of lead and tin, with additions, sometimes, of antimony, bismuth, and copper. German silver, composed of copper, nickel, zinc, and iron, has in part displaced it, and is likely to be itself displaced by some improved combinations. In importance, no alloys can rank higher than those of which printers' types are made, and no known metal possesses the properties essential to them. They consist of lead and antimony, in proportions varying with the kind of types. This alloy is generally believed to have the property of expanding as it cools, thus filling the minutest portion of the mould, and preserving the sharp outline of the letter. The beautiful metal, silver, is too soft for use in a pure state. It is alloyed with copper to give it hardness, and the copper may be used in equal quantity with the silver, without materially impairing the color. The standard silver of Great Britain consists of silver 11.10, and copper 0.90. The French silver plate contains 9.5 parts of silver, and 0.5 copper; trinkets 8 parts silver to 2 of copper. In our own country, these alloys are made as rich or as poor as the individual manufacturer judges best for his interest. His reputation is the only guarantee that his work is what it is sold for. There is no test but actual analysis, and this is not applicable to the articles without destroying them. Specific gravity may be employed to some extent, but as the resulting alloy often has a different density from that of the mean of its metals, the calculation becomes a complicated one for ordinary use. The following rule, however, given by Dr. Ure, may be applied to this purpose: "Multiply the sum of the weights into the products of the two specific gravity numbers, for a numerator, and multiply each specific gravity number into the weight of the other body, and add the two products together for a denominator. The quotient obtained by dividing the said numerator by the denominator, is the truly computed mean specific gravity of the alloy. On comparing with that density the density found by experiment, we shall see whether expansion or condensation of volume has attended the metallic combination." An alloy, which closely resembles gold in color, specific gravity, and ductility, is made of 16 parts of platinum, 7 parts of copper, and 1 of zinc. These are put into a crucible, covered

with charcoal powder, and melted. The gold coins of the United States are required to be 900 parts in 1,000 fine gold, and the remaining 100 parts must be one-half, and may be more, copper; the rest is silver. The fine bars sent on from the New York assay office to be coined in Philadelphia, contain 8 to 10 thousandths silver. This is what goes into the coin; the rest of the alloy is made up of copper. Occasionally, more silver goes into the alloy than the legal amount, from the supplies of gold furnished already containing it. It is this variable proportion of silver and copper that causes the different colors of our gold coins. The alloy of silver coins is strictly copper. The standard of these is also 900 parts of the finer metal, but a deviation is allowed from 897 to 903. The new cent is 88 parts copper, and 12 nickel. This has the effect of whitening the copper. At 20 per cent. the alloy is white. British gold coin is 916.66 parts in 1,000 gold, the remainder mostly copper. The French standard is the same as ours, 900 parts fine gold. British silver coins are 925 parts fine metal; the rest is copper.

ALLSPICE, or Jamaica-pepper, is the fruit of the *myrtus pimenta*; and is called allspice from its combining the flavor of several other spices, such as cinnamon, cloves, and nutmeg. The allspice pimento, or bay-berry tree (*Eugenia pimenta*), is a native of South America and the West India Islands, especially Jamaica. The tree is of a highly ornamental character, often upward of 25 or 30 feet in height; the leaves inclining to oval, covering the numerous branches with a luxuriant evergreen foliage; the flowers small and without show, succeeded by spherical berries with a persistent calyx, and a fragrant aromatic odor. When they are quite ripe, they are of a dark purple color, and filled with a sweet pulp. In many parts of Jamaica the allspice tree grows in great abundance without cultivation, but is not easily propagated by artificial means. The commercial value of the fruit, which in 1848 amounted to over £5,000,000, makes it an object of great interest with the planters, and no crop receives a larger share of attention. The favorite situation for a pimento walk, or plantation, is among the hills on the north side of the island. A spot is selected in the vicinity of another plantation, or in a locality favorable to the spontaneous growth of the trees; this is stripped of all other wood; and the young pimento plants soon make their appearance, either from seeds previously existing in the soil, or which have been deposited by birds who feed upon the berries with great avidity. (See Bigelow's "Jamaica in 1850," New York and London, 1851.) It is said that a single tree has been known to produce 150 lbs. of the raw fruit, or 100 lbs. of the dried spice. The crop, however, is uncertain; and abundant only once in 5 years. The berries require care in gathering as well as drying. They must be picked when they have attained full growth, but before they begin to ripen.

They are then dried in the sun, on raised boarded floors, and frequently turned during the first and second days. They are then put into sheets, often winnowed, and exposed to the sun until sufficiently dried, which is indicated by the color and the rattling of the seeds in the berries. When the seeds are allowed to ripen fully, they lose that aromatic warmth, for which they are esteemed as spice, and acquire a taste almost exactly like that of juniper berries; which renders them agreeable food for birds, the most industrious planters of these trees. The leaves and the bark participate in the warm aromatic properties of the berries. The pleasant flavor of allspice makes them useful as a spice or condiment in cookery. The virtues depend on a volatile oil.

ALLSTAEDT, the capital of the bailiwick of the same name, situated on the Rhone, in the duchy of Saxe Weimar. Pop. 2,550. It has manufactures of cloths, saltpetre, and potash. An imperial diet was held there in the reign of Otho II. in 974.

ALLSTON, JOSEPH, some time governor of the state of South Carolina, and husband of the celebrated and unfortunate Theodosia, the lovely and accomplished daughter of Aaron Burr. She was lost at sea, supposed to have been taken and murdered by pirates. Gov. Allston was a planter of South Carolina, well educated, able, a man of talents, though, as usual with the southern planters, only devoting a portion of his time to public business. His correspondence argues a capacity for political life which might well have justified his entire devotion to politics. He died September 10, 1816.

ALLSTON, ROBERT FRANCIS WITHERS, governor of South Carolina in 1856-'7, born in All Saints' Parish, Waccamaw, of that state, April 21, 1801; was educated at home till his 16th year; entered the military academy at West Point, Dec. 1817. His was the first class that went through a regular 4 years' course under Col. Thayer. Mr. Allston graduated in June, 1821, received an appointment in the 8d artillery, and was immediately ordered on the coast survey, under Lt. Col. Kearney, of the topographical engineers. He assisted in surveying the harbors of Plymouth and Provincetown, Mass., and the entrance of Mobile bay. But domestic duties required that he should leave the service, which he did at the close of those labors; and he retired upon a small patrimony, becoming a rice planter on the Great Pedee. He surveyed his lands in person, reclaimed a wild territory, and found his military education eminently useful in laying out the course of canals, embankments, &c. In all these works he proved highly successful, and has become one of the most thorough, well-informed, and prosperous of the southern rice planters, contributing greatly to the improvement of this peculiar sort of culture. In 1823, he was made surveyor-general of the state, an office which he filled worthily 4 years. In

1838, he was returned by the people of Winyah to the lower house of the legislature. In 1832, he was sent to the senate. He continued to be returned to this body at each election, was finally made president of the senate in 1850, and left it only when elected governor of the state. His career has been one of continued employment, public and private, and unvarying usefulness in all relations. His ambition aimed at usefulness only. In its exercise, he has been modest, gentle of demeanor, courteous always, and duly considerate of the claims of others. His morals are beyond reproach. As a politician, he belongs to the states rights school of Mr. Calhoun. But he has never suffered himself to sink into the partisan. He has always steadily avoided ultraism; shrunk from controversy; was too mild and genial of nature to suffer his political course to run into any extremes; and, while honestly proud of the honors bestowed upon him by his people, has never so hungered after office as to make a single sacrifice of feeling or character in its pursuit. Agriculture and education, the free, or public school system, especially, were always the leading objects of his care while in the legislature. As a planter, his progress in improvement has been steady and decided. He is one of those by whose industry, intelligence, and active exertions, the rice culture of the southern states has gone so far beyond that of the regions from which this nutritious grain was originally introduced. He has contrived and introduced better modes of culture, better varieties of seed, and farm stocks, and farming implements of every kind. His was the first thresher ever erected on the Pedee. He devotes annually a considerable portion of his income to the work of improvement, to new inventions in machinery, structure, manuring, canalling, embanking, &c. To economize capital, labor, time, to keep his land especially "in heart," by feeding properly, and duly resting, are among the prominent secrets of his success. Commencing with 300 acres, he now cultivates 1,800, of which about 1,000 are in rice. He is identified with many of the improvements of his precinct. He is an indulgent master. Himself a religious man, his negroes are carefully instructed in morals and religion. Their tasks are easy, and under his management they work with regularity and system. He has built them a rustic church on each of his plantations, where a missionary attends them regularly, and they have their frequent prayer-meetings beside, where persons of their own color assist in their instruction. Gov. Allston's life is that of a model gentleman and planter. No citizen commands more certainly the respect of the people, for his virtues, intelligence, and perfect amiability of character and conduct. He resides, during the winter, at his plantation called "Chicora Wood," on the Pedee; and, during the summer months, on the Waccamaw Beach sea-shore, where the climate is genial, the sea-bathing excellent, and the fish particularly fine, various, and plentiful. He is a

hospitable gentleman, who naturally asserts all the virtues of the old school gentry.

ALLSTON, WASHINGTON, an eminent American painter, born at Waccamaw, S. C., on the plantation of his father, Nov. 5, 1779, died at Cambridge, Mass., July 9, 1848. His temperament was highly nervous, his mind quick and active, and his sensibility acute. As is usual under such conditions, his health was delicate, and it became evident in his youth that a more bracing climate than that of his native state, was essential to his harmonious physical development, while a greater variety and scope than are afforded by the life of an isolated plantation, were requisite to inform and discipline his intellect. Physician and teacher thus united in advising the removal of the gifted boy to a northern school; and the exigency proved auspicious to the future artist, by introducing him to scenes and influences which gave new vigor to his frame, and impulse to his genius. At that period there was no town in New England that boasted a more cultivated and wealthy community than Newport, R. I. Trade had enriched many of its resident merchants; Bishop Berkeley, Dr. Stiles, and other distinguished clergymen, had given an intellectual tone to its society; Dr. Waterhouse cites its laboratories as the best in the country; a tolerant spirit among its rival sects, frequent intercourse with foreigners, and habits of colonial elegance and hospitality, combined to give a liberal spirit and attractive manner to the social life of this favorite rendezvous of our French allies during the war of independence. Allston was sent there primarily with a view to health, at the age of 7; but he remained 10 years, and attended a very excellent private school kept by Robert Rogers. Slight as was the taste and unfrequent the practice of art at that time among us, Newport enjoyed an unusual share of the few associations connected with a pursuit so interesting to the Carolina boy, whose school-days were passed there.—The first English painter of note who visited our shores, had accompanied Dean Berkeley in 1728 on his voyage to Rhode Island; and we have the artist's record of a visit with his clerical friend, to the Indians of Narraganset; where also Gilbert Stuart was born in 1757, and owed his first encouragement as a painter to the kindness of Newport friends. While Allston was a schoolboy there, a manufacturer of quadrants and compasses of the name of King, who had received a partial artistic education, sometimes painted a portrait; he recognized young Allston's genius, and did all in his power, by correcting his early attempts and suggesting the best methods, to develop the ability and cheer the hopes of the novice. Long afterward his casual pupil spoke of him with gratitude; "it was a pleasant thing to me," he wrote, "to remind the old man of those kindnesses;" a portrait of this venerable friend—probably one of the earliest experiments of Allston in oil—still exists at Newport; the head

is noble in contour and the expression benign; a discriminating eye can also perceive distinct indications of that mellow tone and felicity in coloring which subsequently distinguished Allston's pictures. In addition, however, to this imperfect and incidental tuition, gained only at the intervals usually dedicated by boys to amusement, at the critical time when childhood began to merge in youth, a new impulse was given to his artist's instinct, by the magnetism of sympathy. He formed the acquaintance of Edward Malbone, also a native of Newport, whose remarkable promise as a miniature painter was united to personal qualities and intellectual tastes singularly akin to those of Allston. It is easy to imagine how such an example and companionship, at a susceptible age, and a period when it was so difficult to meet with congeniality in an uncommon vocation, must have confirmed and expanded the love and study of art, in a mind ostensibly engaged in academic education. The walks, discussions, criticisms of each other's drawings, and, above all, the mutual enthusiasm of these youths, alike gifted, candid, and earnest, seem to have been of great mutual advantage, as well as the source of the most pure enjoyment. Although Malbone removed to Providence, R. I., soon after his acquaintance with Allston, their intercourse was resumed in a few months, when the painter was at work in Boston, and the student a collegian at Harvard. After graduating in the year 1800, Allston went to Charleston, S. C., where he again met his friend, and fairly commenced his artist-life. Allston, in one of his letters, justly defines the genius and moral worth of Malbone. "He had the happy talent, among his many excellences, of elevating the character without impairing the likeness; this was remarkable in his male heads; no woman ever lost any beauty from his hand; nay, the fair would become still fairer under his pencil. To this he added a grace of execution all his own. He was amiable and generous, and wholly free from any taint of professional jealousy." While an undergraduate pursuing his studies at the university, Allston not only enjoyed the society but emulated the artistic skill of this charming friend; he was, however, dissatisfied with his own attempts on ivory and in miniature, and soon abandoned the experiment. His leisure was assiduously given to sketching, copying, drawing, and the investigation of color. With the comparative absence both of sympathy and example in art, it is interesting to inquire what means the future painter discovered, at this early stage of his education, to foster and discipline his genius. Art was then in its infancy among us—chiefly represented by the elaborate but artificial portraits of Copley, the historical groups of Trumbull, and the fame of West, then at the height of reputation and courtly favor in England; Stuart's vigorous pencil had begun to be appreciated by the judicious few; and the visits of Smybert, Pine, Wright, and others, had left a few notable memorials of their

skill in likenesses; O. W. Peale was a respected name in the middle states, and that of Bembridge well known at the south; the latter had studied under Mengs and Romney, and gave promise of excellence, but Allston did not remember his works sufficiently, in after life, "to speak of their merits." Yet with so few and scattered illustrations of painting, he arrived at a marvellous degree of knowledge and practical ability in the higher elements of the art; thus indicating a positive and mature genius, before he had actually embraced it as a profession. One of his first works, a portrait of himself in early youth, now in the possession of a venerable friend (Mrs. Nathaniel Amory, of Boston), exhibits a vigor and grace of treatment, a finish of style and transparency of tint, which bespeak the future master. His own account of his studies at Newport and Cambridge, refers to a practice of drawing from prints—figures, scenery, and animals; after this imitative exercise in regard to form and perspective, instinctively adopted in boyhood, he tells us that the two pictures which initiated him into the mysteries and art of color were an old landscape, either Italian or Spanish, that hung in the house of a friend who resided near the university; and a head of Cardinal Bentivoglio in the college library, copied by Smybert from Vandyke, "which," he adds, "I obtained permission to copy one winter's vacation," in which (alluding to his obligations to Pine) "I had a higher master." These inadequate hints stimulated the intuitive perception of color in which Allston so early excelled. One of his favorite pastimes when a child at the South prophesied the artist, and especially the delight in blending and harmonizing effective tints; he used to convert fern stalks into men and women, by arraying them in colored yarn and making them hold pitchers of pomegranate flowers. No sooner was his academic career over, thus beguiled by the companionship of Malbone, the old landscape of southern Europe, and the fine head after Vandyke, into incidental studies akin to his genius, than he went to Charleston, S. C., and, among kindred and early friends, found Malbone and Charles Fraser both occupied there in the same way; and he set up forthwith what he quaintly calls a "picture manufactory." In a short time, with the former friend, he embarked for London to enlarge his knowledge by art-studies in Europe. "Up to this time," he remarks, "my favorite subjects, with occasional comic intermissions, were banditti, and I did not get over the mania until I had been more than a year in England." He alludes, with humorous zest, in the same letter, to his delight when he succeeded in making a gashed throat look real. The charm of such themes was their tragic character, and especially the accessories of dark woods, picturesque disguises, and terrible solitude; we can trace in such experiments the effect of that favorite landscape and impressive cardinal's

head, as well as the imaginative promptings of a poetic and wild instinct. Arriving in London in 1801, Allston immediately became a student of the royal academy, in the presidency of which institution our countryman, Benjamin West, had just succeeded Sir Joshua Reynolds. The integrity and benevolence of West won the confidence of Allston; they soon became intimate, and were attached friends through life. The uniform kindness of the venerable president to his young and gifted compatriot, was ever a subject of grateful remark and remembrance on the part of Allston. The latter's cultivated mind, delightful conversation, and refined manners, would have insured him a welcome in the artistic and literary circles of London, independent of the prestige of his genius as a painter. But while enjoying the highest social privileges of the British metropolis, and a singular favorite with his professional brethren, he devoted his best time and powers to the study of his art. For 8 years he sought, in assiduous practice and observation, for those principles and that facility which subsequently raised him to the highest rank among modern painters. Among his memorable friends, at this epoch, were Dr. Moore, the author of "Zeluco," and Fuseli; but his range of association included the best minds and noblest characters of the time; and his reminiscences of men, artists, and life in London, were always vivid and full of interest. In spite of constant practice at the academy, innumerable studies at home, and many social engagements, such was his zeal and industry, that the very next year after his arrival, he exhibited three pictures at Somerset House—a landscape begun while in college, a rocky coast with banditti, and a comic piece. In 1804 he visited Paris in company with another American painter, afterward celebrated, John Vanderlyn. The Louvre then contained the chief treasures of art from all parts of the continent, and Allston enjoyed a rare opportunity to examine and compare the *chef-d'œuvre* of every school. His partiality for the Venetian instantly declared itself; there was in his genius a natural affinity with those masters of color, his successful emulation of whom obtained for him, at a subsequent period, the name of the "American Titian." In the contemplation of this unrivalled series of pictures, and in study, a few months were occupied, when he repaired to Italy, and passed four years, chiefly at Rome, in the sedulous cultivation of his art. Here he became the intimate companion of Thorwaldsen and Coleridge; and the latter fondly remembered, to the last, his intellectual obligations to Allston. The results of this long communion with the old masters, and this familiarity with nature in Italy, may be distinctly traced in his paintings and writings, and were most attractively exhibited in his conversation.—Allston returned to his native country in 1809, after this fruitful visit to Great Britain, France, and southern Eu-

rope. Having married a sister of the celebrated Unitarian divine of Boston, Dr. Channing, he again took up his abode in London. Although on the occasion of his first visit there, Fuseli, upon learning his purpose to devote himself to historical painting, said, "You have come a great way to starve;" he finished and exhibited, on his return, the earliest work of the kind, on a large scale, "The Dead Man Revived," a scriptural theme which gave ample scope both to his imaginative and executive powers. It may be considered as at once the presage and the pledge of his subsequent reputation, having instantly obtained the prize from the British institution, of 200 guineas, and being soon after purchased by the Pennsylvania academy of fine arts. His next important work was "St. Peter liberated by the Angel," ordered by Sir George Beaumont, and now in the church of Ashley de la Zouch; this was followed by "Uriel in the Sun," now belonging to the duke of Sutherland, and for which the British institution awarded him a gratuity of 150 guineas; and "Jacob's Dream," now in the collection of Lord Egremont at Petworth. The intervals between these great achievements were occupied with smaller but not less characteristic paintings, all of which found eager and liberal purchasers. Those cognizant of the conditions for the development of art, both as an individual pursuit and a national interest, and especially those who were familiar with Allston's character and organization, find cause for deep regret that he did not remain abroad and follow the impulse and the success which, at this time, crowned his life. The intelligent sympathy, the external resources, the public encouragement, and the fellowship of great artists, all so important as stimulants to effort and guides to excellence, were there available; whereas, on this side of the water, comparative isolation and public indifference awaited our great painter. The contrast must have been unpropitious and discouraging, and, when added to the want of health and habits of seclusion, undoubtedly lessened the zeal and limited the works of the only man in the country who gave undisputed evidence of genius in the highest sphere of painting, united to a discipline and finished style, which announced another "old master," as native of the western hemisphere. Unremitted toil, acquiescence in the English custom of late dinner, and thus many consecutive hours of work and fasting, together with a period of deep affliction on account of the death of his wife, however, combined to undermine the delicate constitution of this great artist, at this period of his more genial activity and most eminent success. He returned home in 1818 in feeble health, and with but one finished picture—"Elijah in the Wilderness," subsequently purchased and taken to England by the Hon. Mr. Labouchere. During the succeeding twelve years Allston resided in Boston; but his name and works were cherished in his fatherland,

and soon after his return he received the compliment of election to the royal academy. Among the productions of this period, interrupted as were his labors by inadequate health, the most celebrated are "The Prophet Jeremiah," now belonging to Miss Gibbs, of Newport; "Saul and the Witch of Endor," purchased by the late Col. T. H. Perkins, of Boston; and "Miriam singing the Song of Triumph," owned by Hon. David Sears, of the same city. Of minor works, the most memorable are "Dante's Beatrice" and "The Valentine," female ideal portraits which exquisitely illustrate Allston's extraordinary gifts as a colorist and in poetic expression; the former is the property of Hon. S. A. Eliot, and the latter of George Ticknor, Esq., of Boston.—In 1830 Allston married for his second wife a daughter of the late Chief Justice Dana, of Cambridge, Mass. He there fixed his studio, and thenceforth led a life of great seclusion, enjoying the society of a few intimate friends and kindred, always receiving with cordiality visitors of his own profession and enlightened lovers of art, but avoiding, as far as practicable, the hospitalities of the neighboring city, and the encroachments of general intercourse. In the spirit of a true artist, modified by the habits of an invalid, he secluded himself from the world, to give his better moments to painting, and his leisure to contemplation. At this time many of his best though less extensive pictures were executed, such as "Spalatro's Vision of the Bloody Hand," an illustration of one of Mrs. Radcliffe's most superstitious creations, made for Mr. Ball, of South Carolina, and the beautiful "Rosalie," belonging to the Hon. Nathan Appleton, of Boston. Congress, in 1836, invited him to fill one of the panels in the rotunda of the capitol with a historical picture; but his mind was now intent upon an extensive project, conceived and partially commenced in London, and he declined the national commission. The retired life, extensive fame, and recognized genius of Allston, united to raise the public anticipations in regard to this promised work to the highest degree. The subject was "Belshazzar's Feast;" and those acquainted with the painter's taste and skill, his power of high and broad conception, his mastery of form and color, and his sense of moral grandeur and historical effects, at once beheld in the subject the most desirable scope and inspiration. A few of his friends had caught glimpses of a figure or an effect of light on the carefully hidden canvas; some had stood as models, and others had heard an eloquent exposition of the design from the lips of the artist; the result was to awaken unreasonable expectations, and for years Allston's "great picture" was one of the most interesting triumphs of American art, to which the future was destined to give birth. Mean time, although some progress had been made during the painter's twelve years' residence in Boston, the want of a proper studio caused the work to be laid aside; and, when resumed at Cambridge, various circum-

stances were unpropitious—among them, pecuniary embarrassment (which had led at one time to the confiscation of the unfinished work)—the necessity of more lucrative employment, discouragement from the want of adequate models, frequent indisposition, change of plan, and dissatisfaction with what had been already achieved. It was perhaps too extensive an enterprise for the means and the strength of the artist, situated as he then was, and was therefore from time to time postponed; doubtless the impatient and extravagant views of the public, as well as the painful associations connected with the work from the cause already mentioned, tended still more to retard the prosecution of his elaborate task. In its unfinished state, however, as left at his death, it is no inadequate memorial to a discriminating eye, of the genius of the great painter; a sublime significance and a grandeur of design, as well as a splendid arrangement of light and color, foretell a wonderful picture; and the noble pictorial fragment is the delight of artists. It is now the property of the Boston Athenæum. His original view of the subject and his own design may be gathered from a letter he addressed to his friend, Washington Irving, on hearing of that gentleman's sudden resolution to embark for America. It is dated London, May 9, 1817, and speaking of the plans upon which he had hoped to consult him, he says: "One of these subjects (and the most important) is the large picture—the prophet Daniel interpreting the handwriting on the wall before Belshazzar. I have made a highly finished sketch of it. I think the composition the best I ever made. It contains a multitude of figures, and (if I may be allowed to say so) they are without confusion. Don't you think it a fine subject? I know not any that so happily unites the magnificent and the awful. A mighty sovereign, surrounded by his whole court, intoxicated with his own state, in the midst of his revelry, palsied in a moment, under the spell of a preternatural hand suddenly tracing his doom on the wall before him; his powerless limbs, like a wounded spider's, shrunk up to his body, while his heart, compressed to a point, is only kept from vanishing by the terrific suspense that animates it during the interpretation of his mysterious sentence. His less guilty but scarcely less agitated queen, the panic-struck courtiers and concubines, the splendid and deserted banquet table; the half arrogant, half astounded magicians, the holy vessels of the temple (shining as it were in triumph through the gloom), and the calm, solemn contrast of the prophet, standing, like an animated pillar, in the midst, breathing forth the oracular destruction of the empire!" He was, however, at length, nearly 40 years after this was written, advancing in this long-neglected work, and, though physically no longer vigorous, as strong in intellectual force and elevated sentiment as in his youth and prime,—when his masterly hand was forever stilled, and his eloquent speech forever silenced. About mid-

night, on a Saturday, after a week of steady labor on *Belshazzar's Feast*, having passed the evening with his family in thoughtful but pleasant discourse, he suddenly but gently expired, from a renewed attack of disease of the heart, to which he had been for some time liable. He was in the 64th year of his age. His appearance was unchanged by death; his burial took place by torch light; and thus closed in tranquil beauty and wise self-possession of his transcendent faculties, the artist-life and the earthly being of Washington Allston.—The literary claims of Allston have been thrown into the shade by the consideration of his artistic fame. He exhibited, however, a versatility, invention, and expressive power in language, quite as individual as that he so nobly manifested in lines and hues. With remarkable fluency, vivid imagination, and intense love of beauty and truth, he had also a peculiar sense of the awful and sublime, and a decided analytical perception. Accordingly, in the few of his writings which have been published, these essential gifts of authorship, proclaim him capable of works of the pen not less effective than those he achieved with the pencil. But it was only to beguile a leisure hour, to gratify the demands of friendship, or give play to an importunate fancy, that he wrote. In 1818, during his second residence in London, he published "*The Sylphs of the Season*," a poem in which are pictured, with minute felicity, the natural phases of spring, summer, autumn, and winter, with especial reference to their respective influence on the mind; the poem evinces the most loving observation of nature, and introspective habits of mind. Several minor poems and occasional verses are distinguished for originality of idea and beauty of execution. "*The Two Painters*" is an excellent metrical satire, and the "*Paint King*" weird and imaginative enough to have proceeded from the most fanciful of German bards. In 1821, when his brother-in-law, Richard H. Dana, was engaged in the publication of a serial work of eminent interest, "*the Idle Man*," Allston wrote for it an Italian romance. The periodical was suspended and the tale not published until twenty years later. In "*Monaldi*," his experience in Rome is vividly and gracefully embodied, as accessory to a tragic story of passion, interspersed with the most wise and beautiful comments on art and nature. The style, conception, and philosophic insight exhibited in this tale, its power as an exposition of the passions—especially of love and jealousy, and its grace as a narrative, indicate great constructive talent and literary aptitude. He prepared a course of lectures on art, which were never delivered, but published after his death; they prove the ardor of his devotion to painting, and the deep intelligence of one who had studied for himself the philosophy, history, and science of his profession. Indeed, the writings and paintings of Allston exquisitely illustrate each other. By their mutual contemplation we perceive the

individuality of the artist, and the pure spirit of the man; and realize that unity whereby the genius harmonizes all expression to a common and universal principle, making form and color, words and rhyme, express vividly and truly what exists in the artist's nature. "*Rosalie*," for instance, the poem, is the reflection of "*Rosalie*," the picture; and his letter describing a view among the Alps breathes the identical feeling that pervades his landscape depicting the scene.—Such pictures of this great master as could be obtained on this side of the Atlantic, were collected for exhibition at Boston in the spring of 1839; and, although his largest and most celebrated works were not included, the variety, originality, artistic finish, and beauty—the mature skill and refined genius manifest in this gallery, made a deep and delightful impression upon all spectators versed in art or endowed with a sense of the beautiful. The paintings numbered 42; and they represented every department of pictorial art and every excellence for which her most gifted votaries have been celebrated. The exhibition, limited as it unavoidably was, proved an epoch in the history of art in the United States; it illustrated the genius of a native painter by the most perfect productions; nothing crude, unskilful, insignificant, disturbed the harmony of the scene; it was difficult for the visitor, acquainted with foreign galleries, to believe that he stood in the midst of American works on American soil, for, on all sides, he beheld the evidences of a master hand and an individual mind, worthy to take their permanent place by the side of works long since stamped with universal love and praise. The first impression conveyed by the Allston Gallery was that of the versatile range of the artist's conceptions, the next that of the individuality of his genius. We turned from the impressive figure of the "*Reviving Dead*," slowly renewing vitality at the touch of the prophet's bones, to the pensive beauty of "*Beatrice*," ineffably lovely and sad; the countenance of "*Rosalie*" seemed kindled like that of the maiden described by Wordsworth, as if music "born of murmuring sound had passed into her face;" aerial in her movement and embodied grace in her attitude and drapery, "*Miriam*" sounded the timbrel; the very foot of the scribe appeared to listen to Jeremiah—stern, venerable, and prophetic; keenly glittered the Alpine summits and sweetly fell the moonbeams, and darkly rose the forests in the landscapes, as if glimpses of real nature, instead of their reflex, made alive the canvas; full of character and dignity were the portraits; magnificent old Jews' heads, and exquisite brows of maidens, and imposing forms of prophets, and marvellous light and shade, deep, lucent, mellow hues—all flitted before the senses of the visitor, while each picture formed an inexhaustible object of contemplation and became a permanently beautiful and impressive reminiscence. A remarkable trait in the genius of Allston was his sensibility to the awful, the mysterious, and the

grand. As a boy he tells us, "I delighted in being terrified by the tales of witches and hags, which the negroes used to tell me." This characteristic, in its more elevated affinities, drew him into the sphere of the spiritual, and was exhibited in a profound religious sensibility and faith, and an exaltation of mind and motive which excited the deepest veneration; in its more casual tendency, it made him alive to the supernatural, fond of speculating on the mysteries of life and the soul, and an eager recipient of tales of superstition and wonder. In this we recognize an element of the sublime. Allston indicated its prevalence in his fondness for such themes of art as "A Forest with Bandidi," "The Witch of Endor," "The Dead Man Restored," "Spalatro's Vision of the Bloody Hand," and "Belshazzar's Feast." He has worked out a like vein in the description of the mysterious picture in "Monaldi;" and he always excelled as a relator of ghost-stories. Incidental to this idiosyncrasy, was his deep sense of the principle of conscience in humanity, shadowed forth in more than one of his artistic conceptions. His own moral sensibility was extreme. Indeed, want of self-satisfaction was a primary cause of the frequent interruption of his labors; his ideal in art and in life was exalted, and he would have painted and written more had he been less self-exacting. No painter ever cherished a more elevated view of the ministry and legitimate aims of his profession. On one occasion, when crippled in resources in London, having sold a picture for a considerable sum, as he sat alone at evening, the idea occurred to him that the subject, to a perverted taste and prurient imagination, might have an immoral effect; he instantly returned the money and regained and destroyed the painting. But, perhaps, his convictions and sympathies in regard to art were best exhibited, indirectly, in his judgment of pictures and in his relations to artists. He was a magnanimous critic and a disinterested friend. His taste was comprehensive and catholic, recognizing every phase of merit and modification of genius, however diverse from his own. His letters and conversation evinced a remarkably appreciative mind. He called himself "a wide liker;" and proved himself such by the discrimination and geniality with which he pointed out and advocated the slightest token of excellence in pictures, books, and character. Perhaps it was this enlightened sympathy that drew so constantly to him artists and art-students of every age and degree of culture; for the humblest he had a cheering word or an invaluable counsel; and the number who date their improvement or aspirations from an interview with Allston, vindicate his claim to be regarded literally, as they affectionately called him, "the Master," in all the old genuine and personal significance of that title: many a youthful votary of sculpture and painting can echo the words of Horatio Greenough, in speaking of Allston, "he was a father to me in what

concerned my progress of every kind." The temperament of Allston was preëminently that of a man of genius; it was highly nervous; a fine fibrous texture made his frame elastic and susceptible, quick to receive and transmit impressions. To every aspect of the beautiful he was keenly alive; no effect of nature, expression, and especially of color, escaped him. In the latter his endowment was most remarkable. Leslie compares the harmony of tint in "Uriel seated in the Sun" to the best pictures of Paul Veronese; we have seen that in Rome he was called the American Titian; and there is a mellow, rich, vital, and sometimes ineffable hue in his pictures unrivalled since the days of the old masters. But it was not mere negative or receptive traits which distinguished Allston; he was earnest, often to religious concentration, in his convictions and his tone of feeling. "His eyes," says Irving, "would dilate; his pale countenance would flush; he would breathe quick and almost gasp in expressing his feelings when excited by any object of grandeur or sublimity." A man thus gifted and sensitive, thus noble and fluent, naturally attracted the most select companionship and won the most sympathetic admiration. Accordingly we find that, notwithstanding his habits of intense application in Europe, and of invalid retirement in America, he was sought for, loved, and revered by the choicest men and women of his time. In youth the chosen friend of the gentle and graceful painter, Malbone; on first going abroad the favorite companion of the best London artists and the most intelligent English noblemen; in Rome, exploring the *Campagna* with Irving, and talking of the mysterious and the beautiful with Coleridge; at his modest abode in Cambridge discussing subjects for a picture with Lord Morpeth, or a principle of art with Mrs. Jameson, or of beauty with his poet brother-in-law Dana; encouraging the young, sympathizing with the old, delighting in his pencil and palette to the last, full of reverence for truth, of faith in God,—eloquent, profound, earnest, yet meek, gentle, and benign, living above the world, yet alive to all human interest and spiritual meaning, he realized the ideal of a Christian artist. Mr. Allston was a person of a tall, lithe figure, full expressive eye, broad and emphatic brow, with, in his latter years, long hair of silvery whiteness. His aspect at once proclaimed a remarkable character.

ALLUT, JEAN, the pseudonym of Elie Marion, a French fanatic, born at Barre, a village near Montpellier, toward the end of the 17th century. In 1714, he proceeded to London with a view of founding there a new religion. His writings, explanatory of his peculiar religious views, comprise 6 octavo volumes, which were published at London at the time, but are at this day almost all out of print.

ALLUVIUM (Lat. *alluvio*, an inundation), a geological term, which includes the deposits of sand, gravel, marl, &c., brought down by running

streams of the present period. Other recent accumulations also, as those of peat, and of the hills of sand blown together by the wind, are often called alluvial. They all belong to Lyell's uppermost group, the post-tertiary, and are characterized by containing human relics and remains. In the same group are also included the calcareous rocks of recent origin, which occur on the coast of Guadeloupe, and contain human skeletons embedded in solid limestone; and also the coral reefs, which are in process of formation in tropical seas, spreading out in calcareous strata of hundreds of miles in extent. These are not usually included in the term alluvium; and yet it is not easy to draw a line, that shall exclude any formations of recent origin; for the wash of our rivers, as it settles in the bays at their mouths, often finds some cementing matter, that soon binds it into solid rock, and in this hard rock are entombed as fossils, works of art, or remains of man: Such alluvium hardened into rock is constantly forming in the Mediterranean from the calcareous wash of the river Rhone. A specimen fished up from the bottom contained an anchor as a fossil. In New York harbor the same process is going on; a piece torn off from the solid bottom, not many years since, brought up an old musket almost hidden in the pebbles and salt water shells that embedded it. The old Spanish dollars recovered from sunken wrecks have sometimes to be requarried almost, as their native ores were, out of the solid rock; and the coral reefs receive from oceanic currents alluvial deposits of drift wood, weeds, and sand; all which aid in building up these extensive formations. Thus the term alluvium has no precise signification. The great deposits of alluvium accumulate so slowly and silently, that we little appreciate the immense changes made by running water upon the surface of the earth; yet in the short period from the time to which our records extend back, we find that the sediments of a few small Italian rivers have carried out the coast line into the gulf of Venice from 2 to 20 miles; and that the ancient port of Adria, which, in the time of Augustus, gave its name to the gulf, is now an inland town, 20 miles from the shore. Before the time of Herodotus, the ancient priests of Egypt regarded their country as "the gift of the Nile." From the great pyramids down to the sea all is made land. Herodotus himself remarks, that Egypt was once a long narrow bay like the Red sea, and the two gulfs were separated by a narrow neck of land; and that if the Nile should discharge itself into the Red sea, it might choke it up with earth in a term of years. The great rivers of the world, as the Mississippi, Amazon, Ganges, Orinoco, &c., are producing effects far greater than those of the Nile; but our observations of these extend but a few generations back, and we lack sufficient data for calculating very exactly the rate of increase of their deltas. With the Mississippi, however, this has been attempted by Mr. Forshey, an eminent engineer,

from observations extending through 80 years. Adopting the estimate of Dr. Riddell, of New Orleans, that the weight of sediment is $\frac{1}{11}$ of that of the water, or $\frac{1}{11}$ of its volume; and allowing the quantity of water brought down per second to be 447,199 cubic feet, the whole amount of sedimentary matter annually added to the delta and carried into the gulf, is equal to 4,088,333 cubic feet, enough to cover 144 square miles 1 foot deep. And yet at this rate for the river to have built up the great accumulations of alluvium which make its delta, it would have required 61,000 years; and in the great plain, higher up the river than the upper limit of the delta, which is also evidently of the same formation, there are the accumulations at this rate of some 80,000 years more. Thus long at least, it is probable, the great rivers have flowed as they now flow; and during this latest epoch few changes have occurred in the lower forms of animal life; for in the strata next older than these alluvial deposits, the land and river shells are all of the same species with those now living in the same region.—The delta, through which flow the Ganges and the Brahmapootra, is far more extensive than that of the Mississippi. It is described as a wilderness filled with a labyrinth of rivers and creeks, infested with tigers and crocodiles, and larger than the principality of Wales. In the great freshets frequent to these rivers, the configuration of this region is greatly changed. In a short time many square miles of land have been known to be swept away and deposited in new places. The rivers pour down their turbid waters more fully charged with sediment, and more abounding with the ruins of animal and vegetable life, than are those of the Mississippi. These are swept on toward the bay of Bengal, the waters of which are discolored with the fine mud near 100 miles from its mouth, while the heavier materials subside near the shores, and build up the alluvial strata. Near Calcutta, it was ascertained, on boring for water, that these strata continue below the surface to the depth reached, which was 491 feet. They were alternations of beds of clay and of marl, with others of decayed vegetable matter like peat, which last no doubt had at times formed the surface, until submerged by subsidence, and then buried beneath the deposits of the rivers. In these strata various fragments of fossil bones and shells were brought up, all of which indicated the existence of the same animals that now inhabit the region.—What the rivers are accomplishing in the interior, the tidal currents are effecting along the coasts. They wear down what has been built up in former times, and strew the materials in new deposits of alluvium. In Germany these accessions, called *Anlündung*, are of great value along the coasts of the North sea. On our own coasts they are more commonly of a sandy character, stretching out in long beaches, the material of which is blown inland by the winds, and piled into barren hills. The long sandy strip of land

called the Great South Beach on the south side of Long Island, which is a remarkable example of these sandy strips or "spits," is more than 100 miles in length, exceeding any such accumulation in Europe. These sands are now formed into alluvial beds by the action of the winds and of the ocean currents; but there is good reason to believe, that the greater proportion of the superficial covering of the rocks of Long Island is nothing more than the accumulations of sediment discharged by the Hudson, Passaic, Raritan, and Hackensack rivers.—Alluvial deposits are frequently found in positions above the level of present running waters. Thus, around the shores of some of our great lakes are occasionally seen in the banks, layers of sand and clay containing the same species of shells that are now common in their waters, but several feet above their reach. The famous "Ridge Road," which is traced along the southern border of the western half of Lake Ontario, from 3 to 8 miles back from it, is a remarkable terrace formed of the materials of modern alluvium with recent shells, but standing in a ridge, the summit of which varies in height within moderate limits. In New York its height is from 158 to 188 feet above the lake. A similar ridge is traced along the southern shore of Lake Erie, where it has been found to vary from 187 to 190 feet in height above the lake. Other parallel ridges at higher elevations, but not so strongly marked as this ridge road terrace, seem to indicate that the land has been elevated at different times, as the coast of Chili has been raised in modern times. Similar terraces marking similar elevations, or drainage of the waters to a lower level, are common along our rivers. Niagara furnishes an interesting example of running water, excavating a deeper channel and leaving its more ancient deposits at a higher level. From the falls for 4 miles down, a deposit of fluvial character (determined by the fresh water shells it contains, which are the same species as those now found in the rivers above the falls), is spread over the surface on both sides the river, reaching to the edge of the cliffs. It is 40 feet in thickness, and its bottom is 250 feet above the present channel of the river. These layers of sand and gravel could have been deposited only by water running at their level; and this must have been before the deep gorge was excavated through them, which is now the channel of the river. From the most exact data that can be obtained as to the rate of excavation of this gorge, Lyell estimates that we cannot assign a less period than about 80,000 years for the time it has been progressing back from Queenstown to the falls, a distance of 7 miles.—It is during this modern period of the formation of the alluvium, that the gigantic mammoths and mastodons became extinct. Their bones are found in the peat bogs and marl beds, the origin of which probably does not extend far back from the introduction of man. Indeed, if we may place confidence

in the traditions of the aborigines of this country, we must believe that these animals were contemporary with man. It is stated that in the Indian tribes particular persons are selected to preserve their history and traditions, and thoroughly instruct their successors in this office; and that among the notabilia thus handed down were accounts of the living monsters, whose bones they were familiar with. They were described as "tree-eaters," as never lying down, but leaning against a tree when they slept. The bones of these animals have been often dug out from the alluvium of New Jersey and New York. Previous to the year 1700, a description of some found near Albany was sent by Increase or Cotton Mather to the royal society of London. The bones were supposed to have belonged to some extraordinary American giant. A specimen of the *mastodon giganteus*, probably the largest ever found, was discovered in the year 1845, at Newburg near the Hudson river. The length of the skeleton was 25 feet, its height 12 feet, and length of the tusks 10 feet. In the same year, in Warren county, New Jersey, no less than 6 skeletons of the same species of mastodon were found 6 feet below the surface in the rich mud of a small pond. In the interior, within the ribs of the most perfect one, were taken out with the clay 7 bushels of vegetable matter. Some of this matter microscopically examined in London for Sir Charles Lyell, proved to be small twigs of a coniferous tree, probably the white cedar, such as is still common in our woods. In the western states the bones of these animals are generally discovered in the low places around salt-licks—spots that are still frequented by the deer and other wild animals, that come to suck up the saline waters.—If the alluvium is interesting for these gigantic fossils, it is no less so for the microscopic forms of animal life, which, though invisible to the eye, yet by the immensity of their numbers exceed in aggregate bulk that of all the mastodons and mammoths that have ever lived. For it is not as occasional fossils in geological formations that they appear, but as the substance itself of these formations. The silicious deposit, resembling fine white marl, found underlying peat, and at the bottoms of ponds and marshes, especially in a region of primary rocks—a substance often used as a polishing powder—is found on examination by the microscope to consist of the remains of infusoria. These obscure forms of life, of which it is difficult to say always, whether they belong to the vegetable or animal kingdom, are found both as fossils and living species—the latter almost in every situation where water occurs upon the surface of the earth. They have been the particular study of the German naturalist, Ehrenberg, and of the late J. W. Bailey, professor of the natural sciences at West Point. The latter remarks of them as follows: "Few organic bodies exceed in beauty the symmetrical, elegantly sculptured forms of many of the

species. The fluviatile species may be found in every pond, stream, rivulet, bog, or pool, either nestling among conservæ, parasitic, or aquatic plants, or living in the sedimentary matter at the bottom. They often occur in such vast quantities as to cover hundreds of square yards, to which they give a peculiar color—green, yellowish, or ferruginous, according to the internal coloring matter of the individuals. Most of the species are exceedingly minute, many are entirely invisible to the naked eye; others, however, are quite perceptible without the aid of the microscope. Notwithstanding their extreme minuteness, it is evident, from their vast abundance, that they have some important offices to perform in the economy of nature; and like the coral insect, although the individuals are minute, the result of their united labors is on a scale by no means insignificant. The infusoria are so minute, that many millions of their shells and coverings are contained in a cubic inch of the infusorial earth, which forms extensive deposits in many parts of our country, and particularly in the primary regions of New England and New York. By the silent and until lately unnoticed operations of such minute animals, the foundations of new surfaces, capable of subsequent tillage, are laid. Daily additions are thus made to the habitable surface of the earth, and the stagnant ponds and marshes become verdant and beautiful meadows. These minute animals undoubtedly secrete the silicious matter from the silice dissolved in the water in which they live, as we do the materials in our bony system from the food that we eat."—As the infusoria secrete from the primary rock its principal ingredient, so a class of larger testaceous animals secrete from the limestone the calcareous matter for their shelly coverings; and of their remains are made up the marl beds and other beds of alluvium that abound in shells, as the oyster banks and muscle beds of our coast. The lime of which the latter is composed is no doubt mostly abstracted from that held in solution in sea water; but salt water, fresh water, and land shells, all flourish best where limestone rocks abound, and where this source of lime is deficient, they even acquire the material of their own shells from the remains of former individuals. The accumulations of this nature going on in our ponds, lakes, and harbors, though now little apparent to observation, are a part of the alluvial formation, that will have an important bearing in the future economy of our globe, as the similar formations of previous epochs have in the present period. And the same remark may be extended to that extraordinary vegetable production, peat, beds of which are found rivaling, in the quantity of carbonaceous matter they contain, the beds of fossil fuel, into which they too will in time be converted.—The most interesting feature of the alluvium, which has been already incidentally alluded to, is its being the only geological formation, which contains human relics and remains. By multitudinous catastro-

phes and of the most diverse characters, by flood and by fire, the human race is exposed to destruction, and the remains of man and of his works to be embedded in the strata of the present epoch. The solid land opens and ingulfs him and his cities; the waters swallow him up and the treasures which he intrusted on their unstable surface; they rise upward from their accustomed bounds and sweep away villages with thousands of people at once, and hundreds of thousands of domestic animals. Rivers of mud and showers of ashes overwhelm him and bury large towns beneath their accumulations; and by slow, insidious subsidence of the surface, the works of his hands are carried down to be buried in the sedimentary deposits that soon gather around them. The wrecks of all these matters become a part of the recent strata of the globe. The alluvial deposits of the bays, of the lakes, of the bottom of the ocean itself, abound in them. In no other formations are they found, or ever will be; for the races of animals and plants, that have lived at different periods, have not failed to leave permanent records of their most delicate organizations, and in the rocks of a very distant epoch are still to be seen the foot-marks left by strange forms of birds. Thus man and his works characterize the rocks of this period, as the gigantic birds characterize the new red sandstone, and the great saurians the formations from the lias to the chalk.—The economical applications of the alluvial deposits are numerous and important. They produce our most fertile lands. The clays are the materials of our houses and household utensils. The sands are used for the manufacture of glass, for the composition of mortars, and for many purposes in the mechanical arts. Bog iron ores collect in low marshy places from the filtration of water through older formations, in which ferruginous matters of various forms are diffused. The water dissolves the oxide of iron, and conveys it away, as it dissolves the potash from ashes, through which it leaches. It gathers the scattered materials of the ore together, and as it evaporates leaves them in forms suitable for use. As the ores are removed, more collect and renew the supply; so that they are believed by many, who do not comprehend the manner of their silent accumulation, to be endowed with a principle of growth analogous to that possessed by organic bodies: a belief which, after all, may not, in one sense, be so very extravagant; for according to the researches of Ehrenberg, the ochreous particles, under the microscope, prove to be portions of an organic body of extreme minuteness, which is now believed to be a plant.

ALMA, a small river in the Crimea, running from the high ground in the neighborhood of Bakhtchisarai in an easterly direction, and emptying its waters into Kalamita bay, between Eupatoria and Sebastopol. The southern bank of this river, which rises very steep toward its mouth, and everywhere commands the op-

posite shore, was selected during the late Russo-Turkish war by Prince Mentchikoff as a defensive position in which to receive the onset of the allied armies just landed in the Crimea.—The forces under his command comprised 42 battalions, 16 squadrons, 100 Cossacks, and 96 guns, in all 35,000 men. The allies landed on Sept. 14, 1854, a little north of the Alma, 28,000 French (4 divisions), 28,000 English (five infantry and one cavalry division), and 6,000 Turks. Their artillery was exactly as numerous as that of the Russians, viz.: 72 French and 24 English guns. The Russian position was of considerable apparent strength, but in reality offered many weak points. Its front extended nearly 5 miles, far too great a distance for the small number of troops at Mentchikoff's disposal. The right wing was completely unsupported, while the left (on account of the allied fleets, the fire from which commanded the coast) could not occupy the position as far as the sea, and therefore labored under the same defect. The plan of the allies was founded on these facts. The front of the Russians was to be occupied by false attacks, while the French, under the cover of the 5 fleets, were to turn the Russian left, and the English, under the cover of their cavalry, to turn their right.—On the 20th the attack took place. It was to be made at daybreak, but owing to the slow movements of the English, the French could not venture to advance across the river before that time. On the French extreme right, Bosquet's division passed the river, which was almost everywhere fordable, and climbed the steep banks of the southern shore without finding any resistance. Means were also found, by vigorous effort, to bring 12 guns up to the plateau. To the left of Bosquet, Canrobert brought his division across the river, and began to deploy on the high ground, while Prince Napoleon's division was engaged in clearing the gardens, vineyards, and houses of the village of Alma from the Russian skirmishers. To all these attacks, made with 29 battalions, Mentchikoff opposed in his first and second lines only 9 battalions, in support of which 7 more soon arrived. These 16 battalions, supported by 40 guns and 4 squadrons of hussars, had to bear the brunt of the immensely superior attack of the French, who were soon supported by the remaining 9 battalions of Forey's division. Thus all St. Arnaud's troops were engaged, with the exception of the Turks, who remained in reserve. The result could not long be doubtful. The Russians slowly gave way, and retired in as good order as could be expected. In the mean time the English had commenced their attack. About 4 o'clock the fire of Bosquet's guns from the height of the plateau at the left of the Russian position had shown the battle to be seriously engaged; in about an hour the English skirmishing line engaged that of the Russians. The English had given up the plan of turning the Russian right, since the Russian

cavalry, twice as strong, without Cossacks, as that of the British, covered that wing so as even to menace the English left. Accordingly, Lord Raglan determined to attack the Russians straight before him. He fell upon their centre, having in his first line Brown's light division and Evans' division; the two divisions of the duke of Cambridge and Gen. England formed the second line, while the reserve (Oathcart's division), supported by the cavalry, followed behind the left wing. The first line deployed and charged two villages before its front, and after dislodging the Russians, passed the Alma. Here the reports vary. The English distinctly maintain that their light division reached the breastwork behind which the Russians had placed their heavy artillery, but were then repulsed. The Russians declare that the light division never got well across the river, much less up the steep on which this breastwork was placed. At all events, the second line marched close behind, deployed, had to fall into column again to pass the Alma and to climb up the heights; deployed again, and after several volleys, charged. It was the duke of Cambridge's division (guards and Highlanders) especially, which came to the rescue of the light division. Evans, though slow in his advance, was not repelled, so that England's division in his rear could scarcely give him any support. The breastwork was taken by the guards and Highlanders, and the position was, after a short but violent struggle, abandoned by the Russians. Eighteen Russian battalions were here engaged against the same number of English battalions; and if the English battalions were stronger than the Russian by some 50 men each, the Russians amply made up for this by their superiority in artillery and the strength of the position. The English infantry fire, however, which is generally reputed as very murderous, was especially so on this occasion. Most of the troops engaged were armed with the Minié rifle, and the impact of their bullets, killing whole files at once, was most destructive to the deep Russian columns. The Russians, having all their infantry, except 6 battalions, engaged, and no hope to stem the advancing tide, broke off the battle, the cavalry and light artillery, together with the small infantry reserve, covering the retreat, which was not molested. The English fought decidedly better than any other troops in this battle, but in their habitual clumsy way of manœuvring, deploying, forming columns, and deploying again, unnecessarily, under the enemy's fire, by which both time and lives were lost. The consequence of this battle was to the allies the undisputed possession of the open country of the Crimea as long as the Russians remained without reinforcements, and the opening of the road to Sebastopol. By the first advantage they did not profit, but of the second they availed themselves without delay.

ALMACK'S, a suite of assembly rooms situated No. 26 King street, St. James's, London, so

called after the original proprietor, who changed his rather prosaic name of M'Call into the more euphonious one of Almack. They are occasionally called Willis's rooms after the present proprietors, Frederic and Charles Willis. Here take place the concerts of the musical union, under the direction of Mr. Ella, charity balls, and select public meetings. The annual balls, however, which are held during the season, constitute the chief claim to the fashionable prominence of Almack's. They are managed by a committee of ladies, and the only mode of admission is by vouchers or personal introduction. From a letter written by Horace Walpole to the Earl of Hertford, Feb. 14, 1765, it appears that the exclusiveness of the lady-patronesses, great as it is now, was incomparably greater at the time of the opening of the rooms. "The new assembly room at Almack's was opened the night before last, and they say is very magnificent, but it was empty; half the town is ill with colds, and many were afraid to go, as the house is scarcely built yet. Almack advertised that it was built with hot bricks and boiling water. Think what a rage there must be for public places, if this notice, instead of terrifying, could draw everybody thither. They tell me the ceiling was dripping with wet; but can you believe me when I assure you the duke of Cumberland (the hero of Ouloden) was there? nay, had a levee in the morning and went to the opera before the assembly?" A week afterward, Feb. 22, Gilly Williams wrote to George Selwyn: "There is now opened at Almack's in 3 very elegant new built rooms, a 10 guinea subscription, for which you have a ball and a supper once a week for 12 weeks. You may imagine by the sum the company which is chosen; though, refined as it is, it will be scarce able to put old Soho [referring to the fashionable reunions at the house of Mrs. Corneleys, a German actress, which were then the favorite resort of the cream of London society] out of countenance. The men's tickets are not transferable; so, if the ladies do not like us, they have no opportunity of changing us, but must see the same persons forever." In March, we find in the same correspondence: "Our female Almack's flourishes beyond description. If you had such a thing at Paris you would fill half a quire of flourished paper with the descriptions of it. Almack's Scotch face in a bag-wig, waiting at supper, would divert you, as would his lady in a sack making tea and courtesying to the duchesses." The great change wrought by the spirit of the age upon the exclusiveness of Almack's is evidenced by the fact that the price of the highly coveted ticket has been reduced from 10 guineas for the whole 12, to half a guinea for each ball. Down to about 1830, it retained a great deal of its ancient prestige, but since that time it has been gradually declining, as a fashionable resort. This is chiefly owing to its having been used as an instrument of conferring political favors on political supporters. It has

always been so from its very foundation, and many a man has been brought to vote on cabinet questions and strong party divisions by vouchers to Almack's for his daughters and for himself. But since the railways have brought such a tide of visitors to London, the effect upon Almack's has been very decided, as their first business, upon arriving at the metropolis, was to call upon city and county members, and ask for their influence in procuring tickets for Almack's. Few of the ladies of fashion ever go to Almack's now, with the exception of the lady patronesses, who drop in for a few moments to lend to it their countenance, and in order to consummate the artifice practised upon those who have been invited for political purposes. The supper, which in former times was one of the chief attractions of Almack's, has been entirely discontinued, and in its stead light refreshments are offered to the guests. In Wilson's *Noctes Ambrosianae* we find a humorous allusion to a novel founded upon Almack's, which, at its appearance about 30 years ago, created much sensation, and the author of which is justly characterized by North's friend the Shepherd as a flunky. A gaming club of the same name opened under the auspices of the same proprietor in Thatched House tavern, 85 St. James's street, was celebrated or rather notorious toward the end of the 18th century, the play there having been deeper than either at White's or Brookes's. Topham Beauclerk writes to the Earl of Charlemont, Nov. 20, 1773: "Would you imagine, that Sir Joshua Reynolds is extremely anxious to be a member of Almack's?" Gibbon, the historian, was elected a member of it in 1776, and in his letter of June 24, dated from the club, he gives the following flattering account: "Town grows empty, and this house, where I have passed many agreeable hours, is the only place which still invites the flower of the English youth. The style of living, though somewhat expensive, is exceedingly pleasant, and, notwithstanding the rage of play, I have found more entertainment, and even rational society, here than in any other club to which I belong." Before Brookes's club house was built, the whig party used to meet at Almack's, where a regular book was kept of the wagers laid by the different members. The following are a few specimens: "March 11, 1775, Lord Bolingbroke gives a guinea to Mr. Charles Fox, and is to receive 1,000 from him whenever the debt of this country amounts to £171,000,000 sterling. Mr. Fox is not to pay the £1,000 till he is one of his majesty's cabinet. Aug. 7, 1792, Mr. Sheridan bets Lord Lauderdale and Lord Thanet 25 guineas each, that parliament will not consent to any more lotteries after the present one, voted to be drawn in Feb. next."

ALMADA, a town of Portugal, near the mouth of the Tagus, in the province of Estremadura. Population, 4,588. The town of St. Sebastian, one of the defences of the Tagus, is near by.

ALMADEN DEL AZOGUE, or THE MINES OF QUICKSILVER, a Spanish town in New Castile, district of La Mancha, about 50 miles N. of Cordova. It is simply one long street, built on a ridge of quartz rock, which is rich in cinnabar. The quicksilver mines here are perhaps the richest and most ancient in the world. They were worked by the chain labor system, until within the past 40 years. About 5,000 free persons of all ages now labor in them 6 hours a day. The annual product is 2,000,000 lbs. of quicksilver. The town has a large practical mining school, two Latin schools, three hospitals, and 8,645 inhabitants.

ALMAGEST, a name given by the Arabians to Ptolemy's compend of astronomy, written at Alexandria, in the second century, translated from Greek into Arabic, in the 9th century, and translated from the Arabic into Latin, in the 13th century. A better Latin translation from the original Greek was published at Basel in 1541. The name is derived from the Greek *μεγιστη* (greatest), with an Arabic prefix.

ALMAGRO, a city of Spain, twelve miles E. S. E. from Ciudad Real. Pop. 12,605. It is celebrated for its laces, in the manufacture of which 8,000 females are engaged in the town and its vicinity. Almagro was founded in 1214 by Archbishop Roderic of Toledo.

ALMAGRO, DIEGO DE. I. One of the associates of Pizarro in the conquest of Peru, was born of humble parents in a village of Spain, in 1468, and died in 1538. In the division of offices among the leaders of the enterprise, Almagro was appointed to manage the forwarding of supplies of men and provisions, in which he had to contend with many formidable obstacles, but by his diligence and perseverance overcame them all. From the time of the first landing of the Spanish forces, until the death of Atahualpa, Almagro was engaged in repeated quarrels with Pizarro, whom he accused of practising the blackest treachery toward him, in depriving him of his just share in the fruits of their conquests. He finally attempted to seize Cuzco, the capital, but was persuaded by Pizarro to undertake instead the reduction of Chili, of which kingdom he was to have the undivided control. In 1535 he set forth with 570 European troops, and underwent great hardships among the mountains. The natives resisted him bravely, but he had made some progress, when a rising of the Peruvians, who had attacked Lima and Cuzco, summoned him home. Returning by a toilsome march along the coast, he defeated the natives, and took possession of Cuzco, which he resolved to hold. A civil war ensued, in which Almagro neglected to avail himself of his advantages, until Pizarro, having gained time to recruit his forces by negotiation, marched to Cuzco with 500 men, and, defeating him in a bloody engagement, took him prisoner. After several months of confinement, he was tried, condemned, and strangled. He was a man of frank and winning manners, and far

more popular among his men than Pizarro. His success was the more remarkable, as he had never learned to read or write. II. The son of the preceding, by a Peruvian woman, was a brave, generous, and accomplished youth; his father, mindful of his own deficiencies, having spared no pains in his education. He became the leader of the party opposed to Pizarro, upon the death of Almagro, senior, and, after the assassination of the governor, was proclaimed his father's successor. He enjoyed authority for a very brief season, however, as Vaca de Castro soon arrived, bearing a royal commission as governor. Almagro attempted to resist him, and on Sept. 16, 1542, a sanguinary engagement took place between the forces of the rival leaders, in which the victory remained with his opponent. Almagro escaped after the battle, but was given up by his own officers, and beheaded at Cuzco.

ALMALEE, a city of Anatolia, in Asiatic Turkey, on the river Myra, 25 miles from its mouth. Lat. 36° 47' N. long. 29° 50' E. Population about 20,000. It lies in a beautiful valley among the Massacytus mountains. The stream on which the town is built furnishes a motive power for numerous mills, and is also used in several tanneries, dye-works, and factories. The place is visited for the purposes of trade by numerous Frank merchants.

ALMAMOUN, a caliph of the Abbasside dynasty, son of the great Haroun al Rashid, from A. D. 813-833. After the death of his father, he had to contest the throne with his brother Al-Ameen. The reign of Almamoun commenced the period of literary celebrity, and rivalled that of his father, which had attained so great a height of political splendor. In the interval of their warlike successes, the Arabs directed their energies toward more peaceful victories; and, while Europe was buried in barbarism, the torch of science was kept alive by the Arabs only a few generations removed from pagan barbarism. Almamoun converted his chief town into seats of learning. The new city of Bagdad was the abode of men of science and letters. Philosophers and students came from the most distant parts of the Mohammedan rule to seat themselves on the skirts of the ruler of the faithful. Various works were translated from Greek and Sanscrit. Algebra and arithmetic were borrowed from the Hindoos. Of astronomy the natives of the plains of Mesopotamia retained the traditions, even if they had lost the practice; the degenerate Greeks of the lower empire placed logic, natural history, and the Aristotelian system, within the power of the Arabs. Almamoun was succeeded in 833 by his brother Almotassem, under whose reign the Turks first became body guards of the caliphs, whose empire they were in time to usurp.

ALMANAC is probably derived from two Arabic words, signifying "the diary." In its generalized sense it is a calendar containing the days and months of the year, to which are added

the times of various astronomical phenomena, such as the sun's rising and setting, eclipses, and the like. But the almanac is a species of literature common to so many ages of the world, and to so many different communities, and reflects so faithfully everywhere the local genius of the people for whose taste it is prepared, that a general idea of what an almanac has been and now is—what various shapes it has assumed—can only be gained by a thorough examination of the subject. The pastoral life of the Arabs, and the solitary wastes in which they are accustomed to live, predispose them to religious fanaticism and a belief in astrology. They perform no operation of daily life, and undertake no expedition, without first consulting the stars as the Greeks consulted their oracles. To satisfy this general demand for celestial knowledge, almanacs or books, giving general information and advice upon the movements of the heavenly bodies, became common over the Arabian and Mohammedan world. From them this fashion of literature spread over Christendom, together with most of the Arabian prototypes, so that it is only of late years that astrological predictions have not been contained in nine almanacs out of ten. Many manuscript almanacs of the middle ages are preserved in the libraries of Germany, France, and England. Some of the 14th century are to be seen in the library of the British museum and of Corpus Christi college, Cambridge. The *Bibliothèque Impériale* at Paris, contains an almanac for 1442. The earliest printed almanac of which we have any record is that of George von Purbach, who lived at Vienna about the year 1460. In 1474 Regiomontanus, a German mathematician, resident at the court of the Hungarian king, Matthias Corvinus, published a famous series of almanacs in German and Latin, lasting from 1475 to 1506. Since that time we can trace a tolerably continuous chain of such productions down to our own day. The series of Regiomontanus contained only the eclipses and the places of the planets, and sold for 10 crowns of gold. Yearly almanacs first appeared in the 16th century. They began to be filled with partisan prophecies against parties and individuals in the state. This was forbidden, as to French almanacs, by Henry III. of France in 1579. The *Almanach Royal* of Paris, 1679, contains notices of post times, court reception days, fairs, and markets. To this was soon added the genealogy of the reigning house, a list of the clergy, and other things. The history of almanacs in England, like the history of her periodical press, is peculiarly interesting, because the freedom of printing, the parliamentary government, and the quantities of almanacs that have been preserved in old libraries, enable us to follow the several stages of their growth with much facility. James I. granted a monopoly of the trade in almanacs to the universities and the stationers' company, subject to the censorship of the archbishop of Canterbury, and the bishop of

London, and under their auspices astrology and popular superstition flourished almost unopposed until the year 1775. The puritan spirit of England was naturally very repugnant to this style of almanac, and to suit that taste the almanac of Allstree was published. This calls the supposed influence of the moon upon different members of the human body "heathenish," and vindicates the cause of rational science in the following lines:

Let every philomathy (i. e. mathematician),
Leave lying astrology,
And write true astronomy,
And I'll bear you company.

In 1775, a blow was struck at the monopoly by Thomas Carnan, a London bookseller, who thought it illegal. The case was argued before the court of common pleas, and decided against the stationers' company. Lord North, the prime minister, brought in a bill to legalize the privilege, but the house rejected it by a majority of 75, after an able argument by Erskine at the bar of the house against the maintenance of the monopoly. The freedom of competition in almanacs did not result in an immediate improvement of them. They continued to be filled with nonsense and obscenity, because the popular taste demanded it. An experiment was tried by the stationers' company, of omitting from Moore's almanac the column of the moon's influence on the parts of the human body; most of the copies were returned to them. In 1828, the society for the diffusion of useful knowledge published the *British Almanac*, which was intended to operate and did operate an entire revolution in the time-honored usages of almanac publishers. From that time the empire of astrology was at an end. The newspaper press of Britain took the matter up and covered the old style of publications with ridicule. The stationers' company were at last obliged to follow the example, and they brought out the improved *Englishman's Almanac*. Of other British almanacs, the most deserving are Oliver and Boyd's *Edinburgh Almanac*, Thorn's *Irish Almanac* and *Official Directory*, Punch's *Comic Almanac*, and Dietrichsen and Hannay's *London Almanac*. Of German almanacs, the *Almanach de Gotha*, now in its 94th year, has the widest reputation; Belgium has its much-esteemed *Almanach Royal de Belgique*; the French *Almanach Impérial* and *Almanach de France* extend to about 1,000 octavo pages. We name also, as productions of importance, the *Almanac of Napoleon*, the *Almanac of Literature* and the *Fine Arts*, and a pictorial *Almanach d'Illustration*; but the majority are given up to drollery and light reading. Of such are the almanacs of *drôles*, wits, and laughers, of anecdotes and games. Astrological and necromantic almanacs keep their ground in France, and manifest much vitality. The earliest intellectual productions of the European race on this continent were psalm-books and almanacs. Benjamin Franklin's *Poor Richard's Almanac* (1732) was the first rational one of its class,

and seems to have preceded the English rational almanacs by nearly a century. The American Almanac, published at Boston, has reached its 28th volume, which contains 357 octavo pages. Almanacs are at the present time essentially a branch of popular literature; there is no such thing as a general polyglot almanac of civilization, but each nation, able to produce an almanac of its own, moulds its almanacs to suit its own tastes and habits of thought. A collection of almanacs of all ages and countries would form a very instructive picture of the march of the human mind upward from the lowest stages of superstition and ignorance. Such a collection would also exhibit the local diversities which distinguish, and have long distinguished, one people from another. However, the trade of almanac-making, like that of the court journalist, the minstrel and the bard, does not hold the place it did in the times of Regiomontanus and Purbach. What was once the daily companion and cherished luxury of kings and queens, court ladies and royal mistresses, has become popularized, and placed within the reach of the wives of country farmers and city mechanics. Fame can no longer be acquired in this way, but an amount of information, useful to the domestic sanctuary and the counting-house of the man of business, can be diffused by our contemporary compilers, which the learned doctor, who revelled in a court pension some centuries ago, could never have dreamed of.

ALMANAC, NAUTICAL, is an almanac containing the fullest astronomical information. The British "Nautical Almanac" was commenced in 1767, under Dr. Maskelyne. That part which is useful at sea for the determinations of latitude and longitude has been for many years republished in New York. The French *Connaissance des Temps* is of a similar character, and still more valued is the Berlin *Astronomisches Jahrbuch*, long conducted by Bode, and recently by Encke. The American Nautical Almanac owes its origin indirectly to the immense impulse given to American astronomy by the great comet of 1843, and directly to the national and scientific ardor of Capt. C. H. Davis, U. S. N., the first superintendent of its publication. The first volume for 1855 was published in 1853. This was a true Minerva birth, taking at once a stand equal, and in some respects superior to that of its three rivals mentioned above. Much of the excellence of the work is due to the genius of Prof. Peirce, the industry of the late Sears C. Walker, and the skill of Prof. Winlock, the present superintendent.

AL-MANSOOR, or, with his full name, **ABU GIAFFAR ABD-ALLAH AL-MANSOOR**, the second caliph of the Abbasside dynasty. He succeeded A. D. 758, on the death of Al-Saffah. On his accession, the sovereignty was claimed by Abdallah, his cousin. Abdallah, however, was completely defeated by Al-Mansoor's lieutenant, Abu-Moslem, who was soon after put to

death for declining to serve as governor of Egypt. In 758, Oufa, the then residence of the caliphs, was the scene of a riot got up by the Ravendites, a sect who believed in metempsychosis. This so disgusted Al-Mansoor, that he founded Bagdad, to which city the seat of government was removed. Al-Mansoor's reign was again disturbed by a revolt of the descendants of Ali ben Abu Taleb, which was suppressed. Al-Mansoor was the first of the caliphs who departed from the example of the valiant Omar, and introduced the taste for literature which afterward so distinguished the Mohammedan sovereigns. In his reign many of the best Greek writers were translated into Arabic.

ALMARIC or **BENE**, a teacher of theology in Paris, flourished in the 13th century. He was the principal exponent, during the middle ages, of the theory of Scotus Erigena. According to Almaric, God reveals himself as the true substance of all things, and has had different ages or phases of revelation. Almaric reckoned 8 ages of divine manifestation: 1. The Old Testament age, when God was incarnated in Abraham. 2. The New Testament age, when God was incarnated in the son of Mary. 3. The Almaric age, when God, as the Holy Ghost, was to be incarnate in every person. Hence, his doctrine was denominated the Almaric. It was condemned by the council of Sens (1209). His disciples are reputed to have been immoral and fanatical.

ALMAS, a large market town of Hungary, in lat. 46° 7' N. and long 19° 23' E. Pop. 8,500. The inhabitants are nearly all Roman Catholics. This name belongs to 39 places in Hungary.

ALMASY, PAUL VON, a Hungarian who took part against Austria, in the late struggle of his country for independence, born at Pesth, 1818. In 1844, he represented the district of Fleves in the imperial diet at Presburg, and in 1846 he was a member of that at Pesth. He afterward performed the duties of president of the parliament of Debreczin, on the resignation of Patsamandy and Palffy, and after the ruin of the Hungarian cause took refuge in Paris.

ALMEH (properly **ALIMEH**, the singular of **AWALIM**), an Arabic word signifying learned female, and applied to female professional singers in Egypt. Many of the inferior almeah often dance for the amusement of the harem, and hence the word is incorrectly used to describe the public female dancers, who are of another class. The almeah are hired upon the occasion of a *fête* in the harems of the wealthy, but are hidden from the sight of the master of the house. When there are male guests they sit below in the court, and the almeah are sheltered by the lattice over the window of the harem. The almeah are often highly paid. They excite the enthusiasm of the hearers so much that they frequently lavish large sums for the enjoyment. As much as \$250 has been sometimes collected for a single almeah in the house

of a merchant of moderate means. Some of the almeh deserve their name of learned women. The famous dancing women of Egypt, improperly called almeh, belong to a distinct tribe called Ghawazee. The dancers are of both sexes, but only the females are admitted into the harems. They also perform unveiled in the streets to amuse the populace, and they are often hired to entertain a party of men in a private house. Egyptian dancing is a trade of disreputable character, and consists less of steps than expressive but inelegant postures. The dancers are usually in pairs, and play brass castanets, while the dance is accompanied by the Egyptian violin, drum, and tamborine. The Ghawazee drink arrack or brandy, or some fierce stimulant, before they begin, and the musicians cheer and excite them with exclamations as they proceed. The body of the dancer seems to be convulsed, all the muscles vibrate, she kneels, she writhes upon the ground, still clicking the castanets, and rising to her feet, advances, retreats, and then stopping; after this extraordinary muscular exertion, her body is cold and her respiration regular. The dance itself is a ballet, generally a lascivious pantomime, agreeing precisely in character with the descriptions of Martial (lib. v. epigr. 79) and Juvenal (sat. xi. v. 162), of the dancing girls at Cadiz. The Ghawazee are the most abandoned prostitutes, but they are often very handsome. They are rarely admitted into the most respectable harems, and the most religious Egyptians frown upon them. In the year 1834, Mehemet Ali Pasha banished them to Esne. The best authorities consider them a distinct race from the rest of the Egyptians. They claim themselves to be descended from very remote times; and it is not improbable that the dance described by Juvenal in Cadiz was brought thither by the Arabs. Like the gypsies they are clannish, and marry among themselves. Yet a respectable Arab is not disgraced who marries one of the Ghawazee who has relinquished her profession. They are Mohammedans in religious faith, and sometimes accompany the caravans to Mecca. They hold black female slaves, and trade in camels, asses, &c., and attend all the great religious festivals, and follow a crowd wherever it goes. Some of them sing like the ordinary almeh, and they all wear a profusion of ornament.

ALMEIDA. I. A town of Portugal, in the province of Beira, between the rivers Coa and Dnas Casa. Population, 6,200. It is strongly fortified, and was the scene of the defeat of the French, under Massena, by the duke of Wellington, Aug. 5, 1811. II. A seaport town of Brazil, in the province of Espirito-Santo. It is pleasantly situated on an eminence overlooking the sea, and has some trade with Victoria and Rio Janeiro. The inhabitants are employed in fishing, agriculture, in felling timber and in the manufacture of earthenware, and the spinning of cotton. The town was founded in 1580 by the Jesuits, and contains a church,

market-place, and a large building erected by them, and now used as the town hall, the jail, and the curate's house. Population, 4,000.

ALMEIDA, FRANCISCO DE, the first Portuguese viceroy of India, born about the middle of the 15th century, died March 1, 1510. He was already well known as a successful general against the Moors, and on his appointment to the government of the newly discovered Indian provinces, he was attended by a large number of volunteers. On his arrival on the Malabar coast, he built several forts to protect the Portuguese commerce, and formed alliances with some of the native princes. He sent his son Lorenzo on an expedition against the king of Calicut, who had ill-treated some Portuguese merchants. This potentate was, however, supported by a fleet sent by the sultan of Egypt, and an engagement taking place ended disastrously to the Portuguese, for after a display of great gallantry by the young Almeida, he was slain, his flag ship destroyed, and the survivors of his crew taken prisoners, the rest of the squadron with difficulty escaping. At this juncture, Albuquerque came out to India, but Almeida refused to recognize him, and cast him into prison. Bent on avenging the death of his son, he sailed, himself, on an expedition, and after doing much injury along the coast, met the Egyptian fleet, and totally destroyed it. On his return to the Portuguese settlements in the province of Cochin, he laid down his government, and sailed for home in 1508. Going ashore at Saldanha bay with a watering party, he was massacred by the natives. Almeida's lieutenants discovered Madagascar. Under his government a Portuguese establishment was made at Ceylon, the Maldives discovered and taken possession of, and factories established at Sumatra.

ALMELO, an arrondissement in the province of Oberyssel, in Holland. It has 5 cantons, and 62,000 inhabitants. Its capital, Almelo, is the seat of some linen manufactures. Population, 8,200.

ALMELOVEEN, or ALMELOVEN, JAN, a Dutch engraver of some celebrity, who flourished in the first half of the 17th century. His best works are engravings from pictures by Hermann Saftleeven.—THEODORUS JANSSON VAN, a Dutch physician and scholar, born near Utrecht, July 24, 1657, died at Amsterdam, July 28, 1712. In 1697 he was appointed professor of Greek and history at Harderwick, and in 1702 was appointed to the chair of medicine at the same place, retaining, however, his former professorship. He is known as an editor of classical works, especially those of a medical character.

ALMENAR, JUAN, a Spanish physician who lived toward the end of the 15th and beginning of the 16th century. He was one of the first syphilographers, and in his work, *De morbo Gallico*, published at Venice in 1502, and reprinted at Pavia, Lyons, and Basel, he gives an accurate description of the mercurial treatment.

ALMENDINGEN, **LUDWIG HARSCHER VON**, a German jurist, born at Paris, March 25, 1766, died at Dillenburg, in the duchy of Nassau, Jan. 16, 1827. His father was minister of Hesse-Darmstadt at Paris, where the young Almendingen was educated. He afterward studied law at Göttingen, and in 1794 was appointed professor of law at Herborn, in the duchy of Nassau. He held several offices of importance in this duchy, and was finally, in 1816, appointed vice-president of the Aulic council at Dillenburg. He was also a member of the commission of legislation at Wiesbaden, and distinguished himself by his zeal for the improvement of the laws. He conducted the cause of the widowed duchess of Anhalt-Schaumburg, against the duke of Anhalt-Bernburg, and the case having been carried before the tribunal at Berlin, and there decided against him, he published an account of the proceedings in the suit, in which he animadverted very severely on the Prussian administration of justice. For this he was condemned, in 1822, to a year's imprisonment. This sentence was never carried into effect, but Almendingen was deposed from his office, and never again took part in active life. His works are numerous, and are mostly on legal or political subjects, including a valuable treatise on the origin of war.

ALMENRADER, **KARL**, a German musician, born at Ronsdorf, in Prussia, in 1786, was for some years teacher at the academy of music of Cologne. In the campaign of 1815, he joined the army as director of military music. On his return, he officiated for some time at the theatre of Mentz, and in 1820 he founded in Cologne a manufacturing establishment of flutes and clarinets, but ill health compelled him to abandon the business, and in 1822 he accepted the appointment of bassoonist in chief of the chapel of the duke of Nassau at Biberich. He has composed many pieces, principally for his favorite instrument, the bassoon.

ALMERAS, **LOUIS**, a French general, born at Vienne in Dauphiné in 1768, died at Bordeaux, Jan. 7, 1828. In 1794, while on duty in the Alps, he, with only 200 men, routed a Sardinian corps of 1,500. This brilliant exploit led at once to his promotion. He followed Kleber to Egypt, and distinguished himself there, as well as, on his return, in the different campaigns against Austria and Russia. In 1810 he became brigadier-general. In 1812 he took an active part in the Russian campaign, and in 1823 he was appointed governor of the city of Bordeaux.

ALMERIA, a province of Spain, embracing the eastern part of the old kingdom of Granada, bounded on the north by Jaen and Murcia, on the east and south by Murcia and the Mediterranean, and on the west by Granada. It has an area of 3,800 square miles. Population in 1849, 292,234. Almeria is one of the richest provinces of Spain in mineral wealth. The silver mines of the Sierra de Almagrera produced in 1843 upward of 1,700,000 ounces, and the

lead mines of the Sierra de Gador yielded in 45 years 11,000,000 quintals of that metal. Mining and agriculture are the chief branches of industry. Grain and silk are among the principal productions. Cotton is raised to some extent along the coast, its cultivation having been introduced by Mr. Kirkpatrick, U. S. consul at Malaga, many years ago.—**ALMERIA**, capital of the province, in 86° 51' N. lat., 2° 38' W. long., was one of the most important commercial towns of Granada in the reign of the Moorish kings. It has a magnificent cathedral, and is the see of a bishop. The town is still surrounded by the old Moorish walls. Population, 17,800.

ALMEYDA, **FRANCISCO DE**, a Portuguese theologian, born at Lisbon, July 31, 1701, died in the latter part of the 18th century. He achieved great fame, particularly by his extensive knowledge of the canon law. He wrote various books on theological subjects. His most curious production, and one of peculiar value to students of ecclesiastical history, is his work on the ritual and church discipline of Portugal.

ALMLOF, **NILS VILHELM**, a distinguished Swedish actor, born at Stockholm, March 24, 1799. He commenced the study of medicine, but an unconquerable passion for the stage induced him to abandon that profession, and he made his debut at the Royal Theatre in Stockholm, May 2, 1821, in the character of Leicester, in Schiller's "Maria Stuart." Since that time he has maintained the first place upon the Swedish stage. His chief roles are Appius, in Leopold's "Virginia," Othello, Wallenstein, and Fiesco.

ALMODOVAR, **ILDEFONSO DIAZ DE RIBERA**, count of, a Spanish statesman, born at the end of the 16th century, in Valencia, descended from the family of Ribera in Valencia, holding his title from his wife's family. He received a military education in the artillery school of Segovia, and adopting liberal principles fought for the popular side in the war of independence. Soon after the return of Ferdinand VII. from France he was thrown into the prison of the inquisition on suspicion of being implicated with secret societies. In 1820 he was released by the people, and made governor of Valencia. In 1828 he quitted Spain and retired into France, from which he returned on the invitation of the regent Christina, and was appointed president in the chamber of the Procuradores, a post for which his talents, either as a speaker or thinker, do not seem to have qualified him, and in 1835 he was restored to a more congenial post, captain-general of Valencia. The administration of Toreno gave universal dissatisfaction, and juntas were formed throughout the country with the view of restoring the constitution of 1812. Almodovar, as the chief executive officer of Valencia, was particularly energetic in support of the movement; he dismissed all government employés, and replaced them with others favorable to a change of system; and directed a sale of

the movables and other effects of the religious houses to provide funds; he also imposed a tax on all those who were not enrolled in the militia or were notoriously unfavorable to the revolutionary cause. He headed an address to the regent demanding the restoration of the constitution of 1812. Notwithstanding his decided liberalism, as a member of the aristocracy, he gave offence to the extreme democratic party, which now got the upper-hand, and Almodovar was obliged to take refuge on board an English vessel of war in the harbor. A reaction taking place, Almodovar returned to Valencia as captain-general, and declared the city in a state of siege. He took sanguinary vengeance for every murder committed by the insurgents, and when he could not arrest the actual criminals, he shot their relatives. Under Mendizabal, he obtained the ministry of war, and issued a decree for the enrolment of 100,000 men, with the idea of at once crushing the Carlists. This only resulted in signal failure, and even with the support of the resources of the kingdom which were in the hands of the government, Almodovar could not keep an effective army in the field, nor maintain active operations. From being assailants the Christians were put on the defensive, and in 1836 Almodovar was compelled to relinquish the war department in favor of Gen. Rodil, and to take the ministry of foreign affairs, from which he retired with Mendizabal in 1836. Under Isturiz he was vice-president of the chamber. In 1837 he was appointed senator. He joined the Epartero ministry, and in 1842 became again foreign secretary.

ALMOHADES, a dynasty of northern Africa and Spain, which began with Abd-el-Mumen A. D. 1147, and terminated with Almamoun A. D. 1281. The term is an abbreviation of Al-Mowahedun, which means the Unitarian. The origin of their power is traced to a certain Mohammed ben Toumert, who travelled to Cordova for education, and thence to Cairo and Bagdad to complete his studies. On his return from the east, Mohammed became conspicuous by the austerity of his life and the boldness of his preaching. He made the acquaintance of Abd-el-Mumen, a youth of high birth, and was intrusted by his relatives with the care of his education. Mohammed filled the mind of this young man with his own ambitious views, and instilled into him a belief that he was reserved for a high destiny, and that he was intended to inaugurate a reformed Moslem creed. The two travelled about, and visited both Fez and Morocco. At the latter place, Mohammed's conduct was so insolent, that the king expelled him from the town, upon which he took up his abode in a burial ground, where he preached to the people the coming of the great Mahadi, who was to establish the reign of universal justice and peace upon the earth. One day as he was thus preaching, Abd-el-Mumen remarked, "You are yourself the great Mahadi," and im-

mediately swore allegiance to him as such, in which he was followed by 50, and soon after by 70 others. They retreated to the mountains, preaching the unity of God, and soon their number was swelled to 20,000; and a victory over the king's brother, in which the royal troops were seized with a panic and fled, established the influence of the Almohades. The war was kept up against them with varying success, but in 1128 they marched against Morocco, and obtained a complete victory over the royal troops. The Mahadi now summoned his followers, and announcing his approaching departure, laid down his power, and was said to have been translated. His doctrines were contained in a book written by the famous Algazzali, and comprised slight reforms in the profession of faith. Abd-el-Mumen was now elected sovereign. He overran Oran and Fez, and reduced Morocco, the last refuge of the Almoravides, to extremities. After a desperate defence, the city was taken, A. D. 1148, and Abd-el-Mumen massacred the inhabitants, and razed the town to its foundations. In Spain, the Almohades were equally successful. The Almoravides were defeated at every point. Abd-el-Mumen proclaimed a holy war, but died in the midst of his preparations, A. D. 1168. Yussuf ben Abd-el-Mumen succeeded his father, Abd-el-Mumen, at the age of about 24, and reigned until about 1184, when he died, while besieging Santarem in Portugal. He was engaged during his reign in wars with the Christians, and also with his African neighbors, but found time to devote considerable attention to the adornment of the city of Seville, where he fixed his residence in Spain. The long aqueduct, still existing, by which water is brought to the city from the neighboring mountains, was the work of this monarch.—Yacoub ben Yussuf or Al-Mansoor, his successor, carried on the war against the Christians, and defeated Alfonso III. of Castile, at Alarcos. He is remarkable for his humanity, for he set his prisoners at liberty, and for the liberal encouragement he gave to the arts and sciences. He died in Africa, A. D. 1199.—Mohammed Abu Abdallah, his son, succeeded him. He levied a vast army against the Christians; and the pope having authorized a crusade, the clergy exerted themselves to repel the invasion; and on June 12, 1212, a battle was fought, in which the forces on either side were of enormous number, and Mohammed barely escaped with life, leaving 170,000 dead on the field. He returned to Morocco, and resigning his crown to his son Yussuf Abu Yacoub, who was only eleven years old, died in 1218, after a life of licentious indulgence.—With this prince, who died childless in 1223, the direct Almohades line terminated. Al-Adel and Almamoun, both nearly related to Abu Yacoub, held for a time the empire of the Almohades, but it was soon torn asunder by internal divisions, and, toward the middle of the 13th century, the last descendant of this house, who still maintained a

show of power in the city of Morocco, fell by the hand of an assassin.

ALMON, JOHN, an English political writer, born at Liverpool in 1788, died in 1805. After serving an apprenticeship to a bookseller, he went to sea, and in 1759 settled in London. On the death of George II., he published a review of his reign, which went through two editions. His next production was a "Review of the Administration of Mr. Pitt," which gained him the patronage of Lord Temple. He published also three volumes of "Anecdotes of Lord Chatham;" three volumes of "Biographical Anecdotes of Eminent Persons," and an edition of "Junius," in two volumes, in which he attempted to prove that Hugh Boyd was the author of these celebrated letters. He was a man of strong sympathies, with liberal ideas, and put his pen and press at the disposal of Wilkes. On this occasion he published a pamphlet on "Jurymen and Libellers," for which he was arraigned at the king's bench, but the government could not obtain a verdict against him. He was also arraigned for having sold copies of Junius's letters to the king, compelled to pay a fine, and to find bail to keep the peace for two years. He was the publisher of Wilkes's North Briton, and biographer of the same. In 1774 he established the "Parliamentary Register," a periodical which still enjoys a prosperous existence.

ALMOND (*amygdalus*), a genus of plants, the type of the sub-order *amygdaleæ*, comprehending the almond, the peach, the nectarine, and a few unimportant bushes of a somewhat gay appearance. The common almond (*A. communis*) is a native of Barbary, but has long been cultivated in the south of Europe, and the temperate parts of Asia. The fruit is produced in very large quantities, and exported into northern countries. It is also pressed for oil, and used for various domestic purposes. There are numerous varieties of this species, but the two chief kinds are the bitter almond and the sweet almond. The sweet almond affords a favorite article for dessert, but it contains little nourishment, and, of all nuts, is one of the most difficult of digestion. The tree has been cultivated in England for about 8 centuries, for the sake of its beautiful foliage, as the fruit will not ripen without a greater degree of heat than is found in that climate. The bitter almond contains less fixed oil than the sweet almond. It has a strong narcotic power, derived from the presence of hydrocyanic acid, and is said to act as a poison on dogs, and some other of the smaller animals. The distilled water of the bitter almond is highly injurious to the human species, and, taken in a large dose, produces almost instant death. The leaves of all the varieties of *amygdaleæ* contain hydrocyanic acid, and are often dangerous, while the fruit may be used with entire impunity. To this order, beside the fruits named above, belong the plum, cherry, and nectarine.

ALMONDBURY, a village in the township and parish of the same name in the West Riding of Yorkshire, two miles from Huddersfield. Population of the township, 9,749; of the whole parish, 41,804. It has a number of woollen mills, and a grammar school.

ALMONDE, PHILIPP VAN, a Dutch vice-admiral, born at Briele in 1646, died on his estate, Haaswyk, near Leyden, in 1711. He served under Admiral Ruyter on the memorable occasion of June 11, 12, 13, and 14, 1666, and after Ruyter's death, near Palermo, in 1676, the duty of taking the command of the Dutch fleet, on its way home from the Mediterranean, devolved upon him. He covered himself with glory at the battle of La Hogue, in 1692, when, as commander of the outposts of the combined English and Dutch fleets, he himself fired the first gun, which became the signal for an engagement, that ended in the overwhelming defeat of the French squadron. He also assisted Cornelius Van Tromp in his efforts to reduce the naval power of Sweden, and to afford protection to Denmark. In the expedition against the French and Spanish coasts, under the command of the English admiral Rooke, Almonde was again conspicuous for his intrepidity and bravery. To commemorate his memory, a monument has been erected to him by his nephews in St. Catherine's church, in his native town of Briele.

ALMONER, anciently written *AMNER*, was an officer in a king's, prince's, prelate's, or other great man's household, who distributed his master's alms to the poor. Monasteries also have their almoners. The kings of France had their *grand aumonier*, and the popes had early a similar officer attached to their household. In England, the office of lord high almoner is held by the archbishop of York. In France, the office of *grand aumonier* was held by an ecclesiastic of the highest rank. After the revolution, it was restored by Napoleon, and conferred upon Cardinal Fesch. At the revolution of 1830, it was again abolished, and has not since been heard of.—Almoner (*eleemosynarius*) is also used in ecclesiastical history for the deacons of churches.

ALMONTE, JUAN NEPOMUCENO, a Mexican general and statesman, born in the latter part of the 18th century. He received a superior education, and early distinguished himself by his talents and his courage. He was one of the Mexican generals who in 1836 served in the Texan war under Santa Anna, and the records of the "Massacre of the Alamo" were chiefly made up from Almonte's journal, which was found on the battle-field. He gave a further evidence of his daring at the battle of San Jacinto, and in token of his services he was appointed minister of war by President Bustamante. Here he displayed much courage in quelling the insurrection instigated by Urrea, in July, 1840. The revolution toward the end of the same year, which drove Bustamante from power, deprived Almonte of his office, and for some time he sup-

ported himself as lecturer on science, in the city of Mexico. Afterward he was appointed ambassador to the U. S., and remained at Washington for a considerable time, winning by his high bearing and varied attainments the good will and regard of all with whom he was brought into contact. During the suspension of diplomatic relations with this country he officiated for some time as Mexican minister at the French and British courts, and when in 1858 Santa Anna, with whose views Almonte sympathized, and to whom in the dictator's times of prosperity as well as of adversity, he always stood in the most friendly personal relations, reassumed the reins of power, he was re-appointed minister at Washington, where he remained until 1856, whence, shortly after the downfall of his friend's dictatorship, he was removed to London, where he has since held the office of Mexican ambassador.

ALMORAH, the capital of the British province of Kumaon, and the most important place held by the East India Company in Northern Hindostan, is situated among the Himalayas, 5,837 feet above the sea level, in N. lat. 29° 35', E. long. 79° 42'. The town is built along a mountain ridge, in the midst of a barren and desolate region, and approached by a road which a small force might bar against the advance of an army. The artificial defences of the place are, however, very slight. It was captured by the Gorkhas in 1790, and held till 1815, when the town was attacked and stormed on the 25th of April, by the British forces under Col. Nicolls. On the following day a proposition to treat was made by the Gorkhan commander, which ended in an agreement on the part of the Nepaulese to give up the possession of the province, which thereupon was annexed to the British territory.

ALMORAVIDES, an Arabian tribe which travelled into Syria in the time of the first caliph, afterward traversed Egypt, and finally settled in Mauritania. They were very ignorant of the principles of the Mohammedan religion, which they professed, and were instructed or almost converted to it during the 5th century of the Hegira, by Abdallah ben Yassim, who first introduced the term Marabouts, since so famous in Moorish history, which means "religious men." This chieftain assumed the command of the tribe, and died in battle, A. D. 1058. Abubekr ben Omar succeeded him, but during his absence on a warlike expedition, his lieutenant, Yussuf ben Tashfyn, seized the supreme power. Abubekr on his return, finding his rival too strong, resigned the crown, and Yussuf acknowledged his forbearance by magnificent presents, which he repeated annually during Abubekr's life. Yussuf ben Tashfyn now established, founded the city and empire of Morocco. He was invited to Spain to conquer the Christian invaders, and sent an embassy to Alfonso VI. announcing his arrival in the Peninsula, and summoning that monarch to an unconditional surrender, and to embrace Mohammed-

anism. This haughty demand was treated with scorn by Alfonso, and a desperate battle was fought in the plains of Zalaca, in which the Christians were worsted inasmuch as the enemy kept the field. Yussuf however retired, but the following year returned, and turning his arms against his fellow-believers, he conquered the Moorish kings in detail, and having proclaimed his son as his successor, retired to Morocco, where he died in 1108.

ALMQUIST, KARL JONAS LUDWIG, a Swedish writer, born in 1793, who began life as a politician, but soon left politics for the charms of a primitive mode of life in the Swedish forests. After this he tried the pulpit, but the sphere of theology did not afford sufficient scope to his aspirations, and he eventually devoted himself to literature, where he has already gained some distinction by a collection of romantic poems, called the *Törnrosens Bok*, (Thorn Rose Book). He has written various elementary works on history, geography, &c., in addition to grammars and lexicons, and has likewise composed two epic poems, *Schems-el-Nihar* and *Arthur's Jagd*, beside romances, dramas, tales, and humorous stories.

ALMS, a general term for charitable donations to the poor. In the early ages of the church, Christian charity was divided into four equal parts: one for the bishop, one for the priest, one for the deacons and sub-deacons who lived upon their share entirely, and a fourth for the poor.—Alms also used to denote lands left to religious houses on condition of praying for the soul of the deceased.

ALMY, WILLIAM, an eminent philanthropist of Providence, R. I., born Feb. 17, 1761, died February 5, 1836. He belonged to the Society of Friends, and was a public teacher. He married the only daughter of Moses Brown, and was engaged in business with his brother-in-law, Obadiah Brown, in manufacturing cotton goods. Having become a man of wealth he used it in a manner congenial to a most liberal and generous disposition. The charities with which his life was filled seem only the expression of a general love of his fellow-men. Among others he endowed the New England yearly meeting boarding school, at Providence, to which he not only freely gave money, but also his personal attention, and paid the expenses for the education of 80 young persons placed there by him.

ALNWICK, the county town of Northumberland, is situated on the river Alne, in 55° 25' N. lat. and 1° 42' W. long., 29 miles south of Berwick. Pop. 7,327. The town is well built, chiefly of stone, with broad, well-paved streets, lighted with gas. It has a fine town hall, and a market house erected by the late duke of Northumberland. The ancient castle of the same name lies north-west of the town. It covers 5 acres of ground, and was restored in 1880 at an outlay of £200,000. It is built of freestone, in the Gothic style, and is one of the finest old baronial residences in England. Alnwick castle formed one of the strongest bulwarks against

the incursions of the Scots, in ancient times, and was repeatedly besieged by them. Near its walls, Malcolm, king of that nation, was slain in 1093, and his army routed, and eighty years afterward, William, another Scottish monarch, was defeated, at the head of an army of 80,000 men, and taken captive in the neighborhood.

ALOADIN, or **ALA-EDDYK**, a native of ancient Parthia, prince of the Arsacides or Assassins, was called the Old Man of the Mountain. He lived in the middle of the 13th century, in a castle between Damascus and Antioch, and was surrounded by a number of intrepid youths, whom he intoxicated with pleasure, and rendered subservient to his views by promising still greater voluptuousness in the next world. They were thus incited to assassinate his enemies, and he became a terror to the neighboring princes. From the name and character of his followers, the word assassin is commonly supposed to be derived. See **ASSASSINS**, and also **BATENITES**.

ALOE, AMERICAN. See **AGAVE**.

ALOE, the inspissated juice of the leaves of different species of aloe; succulent plants with long, fleshy, narrow, toothed leaves, growing in tropical countries. The juice is produced either by draining from the leaves, or by expression, or by boiling. Several varieties are known in commerce, some much superior in quality to others. "Cape aloes," obtained from the *aloe spicata*, growing at the Cape of Good Hope, occurs in masses of a shining dark olive-green color, of a vitreous fracture, and translucent at the edges; the powder is of a greenish-yellow color, with a very disagreeable odor, and intensely bitter taste. "Barbadoes aloes" is prepared in the West Indies, and is the product chiefly of the *A. vulgaris*. The color is a dark brown, not shining; the odor is unpleasant, and the drug is used for horses. "Socotrine aloes," from the *A. socotrina*, occurs in pieces of a yellowish-brown color, less shining than the "Cape aloes;" the fracture is conchoidal, the odor aromatic, and the taste very bitter. This is much the most valuable variety. "Hepatic aloes," known in India as "Bombay aloes," has a dark liver-color, and is probably an inferior kind of drug, manufactured from the dregs of other sorts. Aloes consists of a peculiar soluble matter termed aloesin, and an insoluble substance called apotheme. It yields its virtues to water and alcohol, and is often administered in its natural form, or in combination with other substances, in pills. It is an irritant purgative, slow in operation, and acting chiefly on the lower bowel and the rectum. It is sometimes used in constipation, combined with soap, rhubarb, or colocynth. From 2 to 5 grains form a laxative dose; from 5 to 10 grains, a strong purgative. If long continued, it will irritate the mucous membrane of the rectum and produce piles. It has a tendency to irritate the whole of the pelvic viscera, and should be used sparingly and with discrimination.—The Aloe is a genus of succulent

plants belonging to the natural order *asphodelaceae*. It has been divided into a variety of species, consisting of trees, shrubs, and evergreen herbaceous plants, which differ in height from a few inches to upward of 80 feet, and no less widely in the character of their leaves and flowers. A large proportion of these different species have no medicinal properties, but are seen as objects of curiosity, in collections of succulent plants; while the few species above named are highly valued for the juice of their leaves, which forms the aloes of commerce. The processes of preparing the drug are various. Sometimes the leaves are cut off at the stem, then cut in pieces, and the juice drained off in iron vessels. It is then suffered to stand for 48 hours, during which time the dregs are deposited, and the remaining portion is poured off into broad flat vessels, and becomes inspissated. In other places, the leaves are pulled, and after being cut in pieces, the juice is extracted by pressure.

ALOGI, a religious sect flourishing about A. D. 170, and so denominated because they rejected the doctrine of the Logos, and therefore of the Trinity, and for this latter reason denominated Monarchians. They also rejected the idea of the prophetic gifts of the spirit, and hence became specially involved in the Montanistic controversy of that day. Whether the Alogi took the Patristian or subordination branch of the Monarchian faith does not clearly appear, as all the accounts left of them, and indeed of the whole Monarchian movement, are by Tertullian, a Montanist, and therefore a violent antagonist of the Monarchians.

ALOIDES, in classical mythology, Otus and Ephialtes, the sons of Poseidon and Aelos' wife. They were giants whose bodies, though but 9 years' growth, measured 9 cubits in breadth and 27 in height. Had they waited until they had grown to manhood, nothing could have saved the gods. Fortunately they misconducted themselves when young and comparatively tender by waging war on Olympus and piling Pelion upon Ossa. They put the god Ares (Mars) in chains and kept him so 13 months. Ere their beards began to grow, Phœbus Apollo destroyed the dangerous youths with his arrows, and relieved Olympus from its peril.

ALOIS, MARIA JOSEPH JOACHIM FRANZ, reigning prince of Lichtenstein, and duke of Troppan and Jagerndorf, born May 28, 1796. He succeeded his father in 1836. In 1831, he married Francisca de Paula, countess of Kinsky, by whom he has had 8 daughters and 1 son, namely Johann Maria Franz Placidus, who was born Oct. 5, 1840. Prince Alois resides generally at Vienna, and is president of the imperial agricultural society of that city.

ALOMPRA, or **ALOONE-S'HOURA**, the founder of the Burman empire, was born about the year 1710, and died in 1760. He was of obscure birth, a hunter by trade, but, being bold and enterprising, he raised himself to independence and sovereign power, and estab-

lished a new dynasty about the middle of the 18th century. He founded the city and port of Rangoon, and made a treaty with the English. In 1757, after the destruction of the capital of the king of Pegu, his enemy, Alompra, addressed a pompous letter to the king of England. A copy of this letter, which was written upon a sheet of gold surrounded with diamonds, is preserved in the collection of Colonel Burney.

ALOOSHTA, a town of European Russia, situated on a rock on the south coast of the Crimea; it is a very old place, and seems to have been very important. In the 6th century the castle, the ruins of which crown the summit of the rock, was rebuilt by the Emperor Justinian.

ALOPEA, LORENZO DE, more generally known under the Latin name of LAURENTIUS FRANCOIS DE ALOPEA, a native of Venice, was established as a printer at Florence toward the end of the 15th century, and attended chiefly to the printing of Greek books. He published: "Greek Anthology," edited by Lascaris, with a commentary, and dedicated to Pietro de Medici, Aug. 8, 1494, in 4to; "The Hymns of Callimachus," in 4to; *Gnomæ Monosticha*, with the poem of the Musæum, in 4to; Four tragedies of Euripides: *Medea*, *Hippolytus*, *Alcestes*, *Andromache*, small edition in 4to; the first edition of the Argonaut of Appollonius of Rhodes, 1496, in 4to. These editions are remarkable for the beauty of the paper and the elegance of the type; all printed in Greek characters. The first edition of Ficini's Latin translation of Plato, which contains at the end of the Banquet the name of Laurentius Venetus, is also supposed to have come from the press of Lorenzo Alopa. This edition is printed in Gothic characters.

ALOPEOY (Gr. ἀλωπηξ, fox), the fox-evil or scurf-disease, which causes the hair to fall off, a disease of the follicles which secrete the hair, named by the Greeks alopecia, or the fox disease, because that animal is frequently liable to lose his hair in old age. The loss of the hair may be confined to certain portions of the scalp, or it may extend to the whole body. The former, however, is very frequent, and the latter very rare. The causes of alopecia may be either local, or constitutional. A hot dry skin, throwing off scurf abundantly, is one of the local causes of bald head; irritating dyes and applications are another; any skin disease, in fact, may cause the hair to fall by causing chronic inflammation and debility in the secreting bulbs of the hair on the scalp. Typhus fever may also cause the hair to fall; but as the bulbs are not always destroyed by this disease, a little care will cause the hair to grow again. All that is required when the skin is dry and scaly is to brush the scalp with a wet brush gently every morning a few minutes, and apply a stimulating lotion, composed of equal parts of rum and oil of sweet almonds; when the skin is soft and flabby, wash it well and rub it briskly with soap and water every morning, and then apply a

lotion of rosemary water. When the bulbs of the hair are completely destroyed, no remedy will restore them or cause the hair to grow. Amongst the general and constitutional causes of the loss of hair are hereditary tendencies, scorbutic and syphilitic affections, constant head-aches, pernicious fevers, excessive venery, and general debility. In such cases local applications alone are useless; constitutional treatment is absolutely necessary; and when the general health is perfectly restored, the hair bulbs may perhaps revive and secrete hair again; but there is very little chance of such a result, where the functions have been dormant for a length of time. Advertising amateurs who promise immense crops of hair from the application of their nostrums, are generally humbugs.

ALOPEUS. I. Count DANIEL, a Russian diplomatist, born at Viborg in Finland, 1769, died at Berlin, June 18, 1831. He was educated at the military school at Stuttgart, and, in 1807, appointed minister at the court of Sweden. When Gustavus IV., king of Sweden, heard of the invasion of Finland by the Russian troops, he immediately imprisoned Alopeus, but, on the downfall of this king, the latter was set at liberty, and was rewarded by his royal master with an estate and the office of chamberlain. He afterward signed, on the part of Russia, the treaty of Frederikshamn, by which Sweden ceded Finland to Russia. In 1818 he was commissary general to the allied armies, and, in 1815, was appointed to the government of Lorraine, a duty which he fulfilled with much credit. He was afterward appointed minister plenipotentiary of Russia at Berlin, which office he held at the time of his death.

II. Baron MAXIMILIAN, elder brother of the preceding, and also a distinguished Russian diplomatist, born at Viborg, Jan. 21, 1748, died at Frankfort-on-the-Main, May 16, 1822. He studied theology at Abo in Finland, and at Göttingen, but was afterward diverted to the career of diplomacy by Count Panin, who chose him for his private secretary. After having held a high office at St. Petersburg, he was sent, in 1785, to Eutin (Lubeck) as Russian ambassador. In 1790 he went to Berlin as minister plenipotentiary, and gained great credit by the manner in which he fulfilled the arduous duties of this post. In 1807 he went to London as ambassador extraordinary, and afterward, in 1818, took his place again as Russian minister at Berlin. In 1820 he resigned this office, went to Frankfort for the reestablishment of his health, and there died.

ALOST, a town of considerable trade and manufactures in the province of Belgium, in East Flanders. It lies to the west and north of Brussels, and near the Ostend and Brussels railway. It is situated on both sides of the Dender, which has been made into a canal for the accommodation of trade. It has a population of about 15,000, and was formerly the capital of Austrian Flanders. It became the property

of the French in 1667. But in 1706, in the battle of Ramillies, the duke of Marlborough gained a victory over the French and Bavarians, and the French evacuated East Flanders. Alost was consequently abandoned to the allies. The town is well built and clean. In the church of Saint Martin is a picture by Rubens, representing "the Plague of Alost."

ALPACA, a species of the genus *lama* of Fr. Cuvier (properly *llama*), and *aruchenia* of Illiger, which with the genus *camelus* constitutes the family of *camelidae*, of the order of *bisulca ruminantia*. The alpaca is found in the mountainous regions of Peru, and subsists on the coarse and scanty forage which grows on the sterile soil of that quarter. The upper part and the sides of the body of this animal are covered with light chestnut-brown wool, which hangs down in slightly curled meshes of almost one foot in length, and is very soft and elastic, almost as fine as that of the Cashmere goat; the face up to the posterior margin of the jaws, as well as the legs, has short smooth hair; from the forehead a stiff silky hair falls down upon the face. The shearing of the wool takes place at irregular times, annually or every other year, without great care, and without a proper assortment of the various colors or qualities. From 10 to 12 lbs. are obtained from one animal. England surpasses all other countries in the fabrication of tissues from this wool. The most prominent manufactories of France are at Turcoing, and at Lille.

ALPAGO, ANDREA, an Italian physician, a native of Belluno, born at the beginning of the 16th century, died at Venice in 1555. He had a great veneration for the physicians of Arabia, and with a view to enable himself to read their works in the original, he travelled for many years in the East, and resided for some time at Damascus. On his return he was made professor of medicine at the university of Padua, but died a few months after his installation. He translated Avicenna, Averroes, and Serapion, and enriched their works with notes, some of which now remain in manuscript.

ALPAIS or ALPAIDE, surnamed *La belle*, the wife of Pepin of Herstal, the major-domo of the Merovingian kings and the mother of Charles Martel, lived in the 8th century. She won the heart of Pepin of Herstal, who repudiated Plectruda for her. Lambert the bishop of Liege condemned the transaction, and would not bless the glass that was presented to the bride at the marriage festival. Alpais excited her brother Dodor to avenge her. He did so, and Lambert was assassinated. The murderer was eaten up with worms, so says the chronicle, and had to drown himself in the river Meuse to slake his consuming pain. Pepin remained attached to Alpais until his death. She then retired to a convent in Namur, in order to be safe from the malice of Plectruda.

ALP-ARSLAN, the second sultan of the Seljuic dynasty of Persia, born in 1028, died

in 1072. In 1071 Persia was invaded, for the fourth time, by the Greek emperor of Constantinople, but this fourth expedition was defeated by Alp-arslan, who, emboldened by this brilliant victory, determined on extending his dominions even beyond the Oxus. He crossed this river at the head of an imposing army, seized Caryl, a little town across the river, exacting, at the same time, allegiance from the governor Yussuf. Yussuf, however, refused this, and as the sultan, in his indignation, was levelling his arrows against him, he was stabbed by the refractory governor. He died of the wound inflicted, was buried at Merve, and succeeded on the throne by his son Melik Shah.

ALPEDRINHA, JORGE DA COSTA, archbishop of Lisbon, born in the village of Alpedrinha, in the province of Beira, about 1406, died at Rome in 1508. Noble, rich, brilliantly educated, he exerted a great influence at the court of Alfonso V., but his relation with the prince regent, Joao II., was of a less auspicious character, and to prevent all unpleasant collisions, the archbishop departed for Rome, where his rare combination of the advantages of wealth, birth, and intellect, gave him a preponderating influence over the councils of the Vatican. During his long life, spread over a whole century, he was on the most intimate terms with not less than 5 Popes: Sixtus IV., Innocent VIII., Alexander VI., Pius III., and Julius II., while, from his palace at Rome, he continued, until his death, to exert a favorable influence over the destiny of Portugal.

ALPENA, a new county in N. E. Michigan, on Lake Huron and Thunder bay, which is drained by Thunder bay river. It has an area of 700 square miles. The census has not yet furnished any returns of its population, or productions.

ALPES, BASSES, a department of France, on the Sardinian frontier, and part of the old kingdom of Provence. It has an area of 2,666 square miles, and, in 1852, had 152,070 inhabitants. It is mostly a barren and mountainous district, with some fertile valleys scattered among the hills. The department is divided into 5 arrondissements, 80 cantons, and 256 communes. It is the most thinly settled portion of France. Its chief town, Digne, has a population of 4,781.

ALPES, HAUTES, a department of France, part of the old province of Dauphiné, and lying north of the Basses Alpes. The loftiest of the French Alps lie within its limits, and give the department its name. Mount Pelvaux, the highest mountain in France, rises upward of 14,000 feet above the sea-level. The surface of the whole district is rugged and uneven in the extreme. It is divided into 3 arrondissements, 24 cantons, and 189 communes, containing (in 1851) 132,088 inhabitants. The capital is Gap; pop. 8,797.

ALPHA and OMEGA, the first and last letters of the Greek alphabet. The book of Revelation three times designates Jesus Christ by the title alpha and omega. So also Isaiah (xiv. 6) repre-

sents God as saying, "I am the first, and I am the last." We see perhaps the germ of this form of expression in the first commandment of the decalogue. From the brevity with which the apocalyptic declaration might be represented in device, several forms of it came into early use as Christian keepsakes and ornaments, and was also placed as a sort of symbol at the head of epistles and written productions generally, to designate the faith of those using it in the divinity of Christ. The simplest form in which it was used was ($\alpha \omega$). In this form, combined with the cross, it is also found on ancient coins, sarcophagi, tombs, churches, &c. Some of them reach back to the second, and one perhaps even to the first century. In this designation of Jesus some of the early Christians found symbolic and mysterious meanings, as, for instance, that the numerical value of the letters α and ω is 801, precisely the same as the added value of the letters composing the Greek word *πεντηκоста*, dove, and that so Christ meant to affirm his divinity, as attested by the descent of the dove.

ALPHABET, a word formed by coupling the first two letters of the Greek alphabet ($\alpha \beta$, *alpha, beta*). There is but one evidence that the Greeks themselves used this compound word. Athenæus, describing an ignorant man, calls him *αλφαβητος*. But Athenæus was a late Grecian writer. The word was probably coined by the Latins, in that age of Roman history when the Greek literature was cultivated with much zeal, and as the letters were the elements of all written learning, the term came to be applied exclusively to designate the list of elementary signs called letters, and has since been used in such sense. In this sense, every nation which has a language, be it ever so rude, has an alphabet. If, however, we add to this signification, or modify it so as to define an alphabet as the assemblage of the elementary signs of sound, then, according to the usual apprehension of hieroglyphics, the ancient Egyptians had no alphabet. Some eminent scholars, however, have of late advanced the opinion that the hieroglyphics are only letters originally pronounced, and that the language of which they were the vocal elements has simply become still more dead than ordinary dead languages, *i. e.* we have not only lost the sound of the words, but even the tradition that they had a sound. Such an opinion rests on the position that no written language for national purposes is addressed to the mind through the eye directly and only; but that since men are not deaf and dumb as a national characteristic, ideas are spoken before they are written, represented to the ear before they are to the eye, and to the eye only as a *dernier resort*, when they cannot be to the ear, and that therefore the representation made to the eye under the ordinary and normal condition of people with ears, will be a representation not of the thing, and so pictorial, and a copy of nature, but of the sound by which the thing has already been known to the ear, and hence arbitrary and con-

ventional. It is not possible, perhaps, in the present state of hieroglyphology, to determine this question. It is not certain, however, as assumed by hieroglyphists, that this form of writing preceded writing by vocal signs, or with a syllabic alphabet addressed to the ear; for it is matter of history that the Egyptian priests used the hieroglyphs for communicating secretly their sacred matters to each other, long after they had a syllabic alphabet. Perhaps they always did so, and perhaps this was the only use of the hieroglyphic writing. The Greeks, who gave the name hieroglyphs to these characters, seem so to have understood the matter, as the etymology of the term would import. There is always a tendency on the part of professional men to conceal their knowledge actually from the people, while they make a show of it in the use of certain mysterious signs or cabalistic characters. This is seen in the barbarous prescriptions of physicians, and the incomprehensible jargon of legal forms. The hieroglyphs may then have been invented after the vocal signs called letters had been long in use. Instead therefore of looking in these hieroglyphs for the germinal forms of our alphabet, and straining our imagination to find in the Phœnician letter (\aleph) the obscure and transmuted picture of an ox's head, we should consider the forms of the alphabet as purely arbitrary and conventional signs of sounds, and the hieroglyphs as the ingenious artifices of men who either wished for a secret, or a humorous mode of conveying their ideas. The invention of alphabetical writing is involved in the obscurity which time throws over all events in the early and uncivilized history of a people. Between a spoken language and a written one there is a vast hiatus, nor can we say precisely how much civilization and culture is requisite to enable a nation to pass it. Nor is it possible to determine what nation took the lead in this invention. The testimony of tradition and history is generally in favor of awarding this honor to the Phœnicians or the Chaldeans, while some fanciful speculators have gone so far as to discover or pretend to discover from the astronomical pictures they find in the forms of the ancient Hebrew letters, that they must have been invented Sept. 7, B. C. 3446, which would assign the distinction to Noah or some one of his sons. Whether the first vocal alphabet was the result of a slow growth, and received additions from time to time, to supply the increasing demands of culture and the enlarging sphere of human knowledge, or whether it was the product of a distinct and deliberate scientific attempt, must be involved in equal obscurity. Mesrob, the great translator of the Armenian Bible, the first Armenian writing by vocal signs, after studying for a long time without success the problem how to reduce the language to a visible form, avers that in a vision he received from an angel the alphabet in use ever since in the Armenian language. By the side of this put the magic power ascribed by the ancients to written words, and we

have perhaps a suggestion that they considered the art of representing language by written signs to have been a divine gift, and also to have been imparted in perfection, and without a developing process. But whether alphabets were originally the result of a developing process or not, it is quite certain that since they have had a history they all exhibit a development in the gradual change taking place both in their forms and in the sounds they represent. This is an important consideration, both in positive and comparative philology. The letters of a vocal alphabet, whatever may have been their origin, should of course, in the outset, represent the sounds of the language, *i. e.* when articulated by uttering in combination the conventional sounds, severally bestowed upon them, they should produce the spoken words which had, before their invention, been the vocal signs of an idea. This principle will therefore utterly forbid, except on the charge of redundancy (which would hardly be admissible on either theory of the origin of letters), that 2 letters should represent the same sound, and equally, except on the charge of deficiency, that 2 sounds should force themselves upon the same letter for utterance. But in the present condition of every known language both these features exist, as seen in the English words "philosopher" and "feast," where the same sound is represented by the written characters *f* and *ph*, and in "gin" and "give," where 2 sounds throw their utterance on the letter *g*. These features are the result of a growth, which seems destined to widen the breach between the orthography and the orthoepy of a language, until it shall become purely a matter of tradition how our ancestors pronounced the words they wrote. And is not this the very process by which a language dies? Is not the fact that its pronunciation is lost, while the signification of the written characters remains, the very thing that makes Greek and Latin dead languages to-day? Had now the nations who spoke these languages been obliterated before they had made dictionaries of their tongues, in what different condition would Greek and Latin works be to us to-day from that which is occupied by the Egyptian hieroglyphics? But these changes in the representations of sounds by letters are instructive in another direction. They exhume resemblances in languages, that otherwise appear widely diverse, and exhibit a harmony in the forms of each separate language, now concealed by its written characters. For the better apprehension of these cognate features, let us classify the letters of the alphabets with reference to their powers in sound. Letters, in all alphabets, may be classed into 2 grand divisions, vowels and consonants. It forms no objection to this division, as will be presently seen, that some languages have no written vowels. Of consonants, there may be reckoned in all languages 4 subdivisions, *viz.* 1, gutturals; 2, dentals; 3, liquids; and 4, labials.

Now, the rule which the growth of language has observed is, that the consonants of any one subdivision are interchangeable. As instances of this, and in the order of the above classification, take

1. gelidus (Lat.), cold (Eng.)
gan (Sansk.), chna (Germ.), cow (Eng.)
gune (Gr.), kona (Iscl.), qulana (Swed.), chona (Old High Germ.), woman (Eng.)
2. damas (Gr.), domo (Lat.), tame (Eng.)
traho (Lat.), drag, track (Eng.)
dursten (Germ.), thirst (Eng.)
deni (Lat.), zehn (Germ.), ten (Eng.)
tectum (Lat.), deck, thatch (Eng.), tag (Sw.), dach (Germ.)
- digitum (Lat.), touch (Eng.)
3. aliter (Lat.), ander (Germ.), another (Eng.)
telt (Dan.), tent (Eng.)
4. pando (Lat.), bend (Eng.)
vello (Lat.), pull (Eng.)

In addition to the rule thus illustrated is another that the vowels being all of the same power, may be interchanged at pleasure in the written forms of words. It results first from this rule that vowels cannot be radicals in the forms of a language. Indeed, in all the eastern languages of the Semitic family, the vowels are not written, while in the western languages, of Teutonic origin especially, the vowels are written but are freely interchangeable. A familiar instance is in the words sang, sing, song, sung, where the vowels are no essential parts of the forms. Now, by looking at the previous list of words in the light of this additional rule, the analogies of the forms will appear still more clearly, as also of those that follow, cup, goblet; rob, rive, rip; collum (Lat.), hals (Germ.), halter (Eng.); collis (Lat.), hill (Eng.); hole, hell; jugum (Lat.), yoke (Eng.) Add to this that inversion of the order of letters is allowable in the transition from one language to another as inversion in the words of a sentence, and we shall increase the number of our analogies. Thus, dakar (Heb.), dirk (Eng.), kord (Bohem.), pok (Magyar.), oob (Eng.), signifying spider, of which we have a relic in the compound, oobweb; at (Old Eng.), to (Mod. Eng.) These instances might be greatly multiplied, but those given must suffice. Thus it is evident that the more we go beneath the surface of the forms which written alphabets and their progressive corruptions have imposed on languages, the more we discover their cognate characters. Sir William Jones pronounced the Sanscrit language wholly unrelated to the Semitic family of tongues; but by the above exhibition, the Hebrew has marked affinities with the Indo-European tongues, which are branches of the Semitic. The number of letters in the alphabets of the various languages is variable. There is, however, agreement enough in them to suggest a common origin, or at least an origin determined under the action and control of some common principle. Many of the alphabets were very plainly derived from one or more previously existing alphabets. Thus the Coptic is of Greek origin; the Goth is a mixture of Greek and Latin; the same is also true of the Runic and Icelandic. The language

whose alphabetical written forms least represent its orthoepy, is the Celtic. On this ground, as well as on some others, an attempt has been made to establish a very high antiquity for the Celtic tongue. The language of second rank in this very undesirable qualification is probably the English. Who could enunciate the word designed to be orthoepically represented at this day in the characters *phthisic*, or which?—An able and curious work on the "Significance of the Alphabet," published in Boston (1846) by Charles Kraitsir, M. D., attempts so far to grasp the original intuitions which governed the expression of thought in vocal symbols, as to state and show by instances from various languages not usually included in the same family, the offices of the 4 classes of consonants mentioned above, and maintains that each class was for the expression of a corresponding class of ideas. Thus the gutturals express causal ideas, the liquids moving effect, the labials living effect, and the dentals dead result. If these suggestions be true, syllables, and finally letters, contain all the true meaning and signification there is in language, and the proper method of studying a language is to evolve it from its alphabet. The relation of alphabetical writing to civilization and science cannot but be evident. Some speculations have been put forth and attempts made toward a universal written alphabet. It would seem, however, greatly as such a consummation may be desirable for human progress, almost useless to attempt to supersede the natural order of things. A written language is the product of a spoken one, and a universal alphabet must therefore wait the advent of a universal speech, and this will come when the causes which have confused the tongues of men shall reverse their action on human mind and destiny.

ALPHEN, HIERONYMUS VAN, a Dutch poet, born at Gouda, Aug. 8, 1746, died at the Hague, April 2, 1803. He was not only distinguished as a poet, but as a theologian, as a jurist, and as a historian. Many of his poems are of a religious character, and some of them have been inserted in the collections of hymns for Christian worship in Holland. His poems for children are very highly praised, and have been translated into German, French, and English. Besides his poems, he published a number of essays on subjects of a religious character.

ALPHERY, MIKHAIL, a clergyman of the church of England, and connected with the imperial family of Russia, was sent to England during the political troubles of his native country, at the close of the 16th century, where he studied at Oxford, and soon after took orders. In 1618 he was appointed to a living, and devoted himself to his duties as a pastor, resisting firmly all the efforts that were made to induce him to return home. In 1643 he was deprived of his rectory, and very harshly treated, but after the restoration was replaced in his former station. He died, much respected, at the age of 80.

ALPHEUS, a celebrated river of Peloponnesus, which rises in Arcadia, and flowing through Elis and the Olympian plain, discharges itself into the Sicilian sea. A curious legend has come down to us touching the Alpheus.—The god of the Alpheus falling in love with the nymph Arethusa, Diana essayed to save her from his embraces by transforming her into a fountain, and placing her in the Ortygian isle, near Sicily. The fluvial deity was not, however, to be thus baffled. He made a passage for his river beneath the intervening sea, and, in spite of Diana, commingled its waters with those of the fountain in distant Ortygia. The Alpheus, on account of its proximity to the scene of the Olympic contests, figures more prominently, perhaps, in the works of Hellenic poets, than any other river of Greece. It is now called the Roupia.

ALPINI, PROSPERO, a celebrated physician and botanist, was born at Marostica, in the Venetian territory, Nov. 28, 1558, and died at Padua, Feb. 5, 1617. In his youth he bore arms for a while in the Milanese service, but was persuaded by his father to abandon the profession, and study medicine at Padua, where he received his degree in 1578. He had become passionately fond of the science of botany, for the study of which he enjoyed but limited advantages; and as he desired particularly to examine into the structure and habits of exotic plants, in 1580 he accepted the post of physician to George Emo, the Venetian consul in Egypt. There he spent 3 years, and made a voyage up the Nile, everywhere obtaining additions to his stock of botanical knowledge. He seems to have been the first to notice the sexual difference of plants, which he inferred from the mode of cultivating the date. Returning home in 1586, he was for a time the physician of Andrea Doria, prince of Melfi; but finally accepted the chair of botany at Padua, and occupied it for many years. He wrote several works in Latin.

ALPNACH, a village of Switzerland, on the S. W. arm of the lake of Four Cantons, in the canton of Unterwalden. Its population is about 1,800. The celebrated slide of Alpnach consisted of a wooden railway, by which timber from Mont Pilate was conveyed down to the lake.

ALPS, the highest and most remarkable chain of mountains in Europe, forming the water-shed, or dividing line between the rivers which discharge their waters into the Mediterranean, and those which run to the Atlantic ocean, the North or German sea, and the Black sea or Euxine. The Alps have a general crescent-like form, and extend through 12 degrees of longitude, and from 1 to 4 of latitude, their extreme length being about 1,100 miles from E. to W., and their breadth varying from 50 to 200 miles. From the principal chains, spurs extend to the Apennines, the Pyrenees, the Vosges, the Hartz, the Sudetes, the Carpathians, and the Balkan. The average height of

the different ranges is about 7,700 feet, from which altitude more than 400 peaks rise into the region of perpetual snow. The principal subdivisions of the Alps are the following: I. The **MARITIME** or **LIGURIAN ALPS**, consisting of two portions; the 1st extending in a semi-circle, from the S. W. extremity of the Alpine chain to the Col de Lauzanis in Piedmont, and forming, for 45 miles, the line of separation between that province and the county of Nice; the 2d, distinguished as the Upper Maritime Alps, extending 80 miles, and terminating on the S. W. frontier of Piedmont, in the lofty peak of Monte Viso. The principal altitudes of the Maritime Alps are: Peak to the W. of the village of Maurico, 13,107 ft.; Monte Viso, lat. $44^{\circ} 40'$, long. $7^{\circ} 5'$, 12,582 ft.; Monte Pelvo, lat. $44^{\circ} 30'$, long. $6^{\circ} 58'$, 9,958 ft.; Col de Maurin (dep. of Hautes Alpes), 9,784 ft.; Col de Roburent (dep. of Basses Alpes), 9,718 ft. II. The **COTTIAN ALPS**, extending, in a triangular form, from Monte Viso to Mont Cenis; having the province of Turin on one side, Savoy on another, and the department of Hautes Alpes in France on the third. They are about 75 miles in extent, and give rise to the Durance, the Po, and several smaller streams. The principal summits are, Mont Olan, to the N. E. of Gode-mard, 13,831 ft.; Mont Pelvoux de Vallouise, S. W. of Briançon (dep. of Hautes Alpes), 13,440; Mont Galeon de la Grave, N. of Briançon, 12,487; Mont Genève, E. of Briançon, 11,785; Col del Agnello, between Piedmont and the valley of the Gull, 10,646. III. The **GRAN ALPS**, the Gray Alps of the German geographers, extending from Mont Cenis to the Col du Bonhomme, a distance of 60 miles, between Savoy on the W. and the provinces of Turin and Aosta on the E., giving rise to several tributaries of the Po and the Rhone. The most elevated summits in this chain are, Mont Iserein, lat. $45^{\circ} 31'$, long. $7^{\circ} 16'$, 13,274 ft.; Aiguille de la Sassière, lat. $45^{\circ} 30'$, long. $6^{\circ} 59'$, 12,846; Rocca Melone, lat. $45^{\circ} 12'$, long. $7^{\circ} 4'$, 11,569; Mont Cenis, lat. $45^{\circ} 14'$, long. $6^{\circ} 45'$, 11,457. IV. The **PENNINE ALPS**, extending from the Col du Bonhomme to Monte Rosa, a distance of 75 miles, between Savoy and the Valais on one side, and Sardinia on the other. This chain includes the 8 loftiest mountains in Europe, as well as several other peaks of considerable elevation, *e. g.* Mont Blanc, lat. $45^{\circ} 50'$, long. $6^{\circ} 51'$, 15,782 ft.; Monte Rosa, lat. $45^{\circ} 56'$, long. $7^{\circ} 52'$, 15,150; Mont Cervin, long. $7^{\circ} 43'$, 14,885; Le Geant, N. E. of Mont Blanc, 13,800; Aiguille du Midi, 12,743; Mont Velan, lat. $45^{\circ} 53'$, long. $7^{\circ} 15'$, 11,063; Pio Blanc, E. of Monte Rosa, 11,190. V. The **LEPONTINE** or **HELVETIAN ALPS**, including the divergent chain known as the **BERNESE ALPS**. This division covers western Switzerland, extending on both sides of the Rhone, dividing Lombardy from Switzerland, and one branch terminating at Monte Bernardino, while the other extends to, and unites with, the Jura mountains, N. of Lake Geneva. This portion

of the Alps is more visited than any other, and comprises the finest mountain scenery in Europe. Its most elevated peaks are: the Finsteraarhorn, 11 m. W. of the Grimsel pass, 14,106 ft.; Mont Furca, 10 m. W. of St. Gothard, 14,037; the Jungfrau, lat. $46^{\circ} 32'$, long. $7^{\circ} 57'$, 13,718; Le Monck, between Mt. Eiger and the Jungfrau, 13,498; the Schreckhorn, N. of the Finsteraarhorn, 13,886; the Eiger, W. of the Schreckhorn, 13,075; the Blümlis Alp, lat. $46^{\circ} 49'$, long. $7^{\circ} 45'$, 12,140; the Gallenstock, lat. $46^{\circ} 37'$, long. $8^{\circ} 25'$, 12,481; Monte Leone, on the Simplon, 11,541; Pesciara, the highest of the St. Gothard group, 10,595; the Moschelhorn, in the Rheinwald, 10,870; St. Gothard, 9,964; the Grimsel, 9,704. VI. The **RHETIAN ALPS**, commencing at Monte Bernardino, extending for 225 miles along the frontiers of Switzerland, Italy, and Germany, and terminating at the N. E. extremity of the Tyrol. The principal summits are: Mont Julien, 13,855 ft.; the Ortler-spitz, lat. $46^{\circ} 28'$, long. $10^{\circ} 32'$, 12,853; Monte della Disgrazia, 12,060; the Wetterhorn, 12,176; Monte Gavia, 11,754; the Dædi, 11,735; and several other peaks of nearly the same altitude. VII. The **NORIC ALPS**, commencing at Dreyhorns-spitz, where the preceding division terminates, lat. $47^{\circ} 5'$, long. $12^{\circ} 15'$, extend through Salzburg, Styria, and upper and lower Austria, forming the dividing line of the basins of the Salza and the Drave. Their highest peaks are: The Gross Glockner, lat. $47^{\circ} 7'$, long. $12^{\circ} 43'$, 12,776 ft.; the Wisbachhorn, in the N. of Carinthia, 11,518; the Hohenwait, in Carinthia, 11,075, together with several other summits nearly 10,000 feet high. VIII. The **CARNIO ALPS**, or **BIENBAUMERWALD** of the Germans, extending from Pellegrino, to Terglou, separating the waters of the Gail from those that flow into the gulf of Venice, and sending out a spur to divide the waters of the Save and the Drave. Its highest peak is La Marmolata, lat. $46^{\circ} 26'$, long. $11^{\circ} 25'$, 11,508 ft. IX. From Terglou this chain is prolonged a distance of 120 miles, through Illyria to Mont Klek under the name of **THE JULIAN** or **PANNOIAN ALPS**. This chain separates Lombardy from Illyria. Its loftiest summit is the Terglou, lat. $46^{\circ} 22'$, long. $13^{\circ} 51'$, 10,866 ft. X. A southern branch of these bears the name of the **DINARIC ALPS**, and extends from Mont Klek to the neighborhood of Sophia, where it unites with the Balkan, forming the Hellenic and Rumelian mountains. The St. Gothard, though not the highest peak, is yet the culminating point of all these chains of the Alps, and is distant, in a direct line, from the Mediterranean, 156 miles, 235 from the Adriatic, 525 from the Atlantic, 504 from the North Sea, and 555 from the Baltic. It will be evident, from these distances, that the southern slope is far more rapid and precipitous than the northern.—The line of permanent snow, for the whole Alps, averages 8,900 to 9,000 feet of altitude. On the northern slope, it is usually 600 or 700 feet lower than on the southern. The glaciers of

the Alps (Swiss, *glacier*) form one of the most remarkable features. From the peaks, more than 400 in number, which rise above the line of perpetual snow, there descends into the valleys below a mass of partially melted snow and comminuted ice, often of very great extent; constantly pressed forward by the accumulation of ice and snow behind it, nothing can resist its onward progress; trees, rocks, houses, all are borne forward on its slow moving surface, till it reaches the point where the sun's rays are sufficiently fervid to melt the mass, when it forms the source of some mighty river. Often these glaciers present a comparatively smooth surface, the pieces of ice of which they are composed varying in size from a pea to a walnut, but not unseldom they are rent by huge fissures, which are impassable by travellers. The most remarkable of these Alpine reservoirs are the glaciers of Mont Blanc, which cover an area of from 90 to 100 square miles. The Mer de Glace, the largest of these, on the northern declivity of the mountain, is 18 miles in length, from 8 to 6 miles in breadth, and from 80 to 120 feet in thickness. It has been very fully described by Prof. Silliman, in his "Travels in Europe," published in 1852. The whirlwinds of the Alps are worthy of notice, not only from their terrific violence, often overwhelming the hapless traveller with the blinding snow, but from their frequently setting in motion the dreaded avalanche. So precipitous are many of the slopes of the Alpine peaks, that the giving way of a slight barrier, a tree, or bowlder, perhaps, is sufficient to detach from its original position a vast mass of snow and ice; this, gathering force from its fall, brings sudden and inevitable destruction on whatever may be on its track, burying at times whole villages, crushing extensive forests, and filling up the beds of rivers. In some parts of the Alps, these masses are so delicately poised that the jar of a footstep, the ringing of a small bell, the breaking of a stick, even, is sufficient to cause their precipitation. The optical illusions of the Alps, resulting from a condition of the atmosphere analogous to that of the mirage, have been the subject of much comment. The spectre of the Brocken is the most remarkable of these. It is observed on one of the summits of the Noric Alps. Mont Blanc, the highest mountain in Europe, was first ascended in 1786 by Paccard. Its ascent is now a common though dangerous feat of adventurous travellers.—The geological structure of the Alps is particularly interesting for the evidences it affords of metamorphic action taking place on the most magnificent scale, and within very recent geological periods. The granitic rocks, which form its highest summits, even the talcose granite of Mont Blanc itself, has within the period of the existence of living species of shells, been elaborated from strata of comparatively modern origin. The granular limestones, and the crystalline schists, as the micaceous and talcose slates of the central or Swiss Alps, and

the talcose gneiss, pass insensibly into the strata of the lias, oolite, cretaceous, and even of the eocene rocks, testifying to their recent origin, as but the altered vestiges of these formations. And, as suggested by Sir Charles Lyell, one cannot avoid suspecting that the disappearance both of the older secondary, and primary fossiliferous rocks may be owing to their all having been converted in the same region into crystalline schist. No known region of the world, of the same extent, presents so fine an opportunity of studying these phenomena exhibited on so grand a scale, as the Swiss Alps. The granites, formerly supposed to be the oldest rocks, and hence called primitive, are covered, at the height of 10,000 feet, with the nummulitic limestone of the eocene formation, with its fossils, some of living species, all which must have been as late as the period of the lower tertiary group, deposited beneath the waters of the ocean. The elevation of this mountain chain is thus brought to a period long subsequent to that when the Alleghanies of our own country, having received their capping of the rocks of the carboniferous epoch, were lifted into the position they have ever since sustained. Even as late as the miocene period, which as compared with the carboniferous epoch on the geological scale, is as yesterday to us, summits of the Alps, now more than twice the height of any of the Alleghanies of Pennsylvania, were depressions beneath the sea level, receiving their covering, that now determines their age, of marine depositions and shells only slightly differing from those now collected in the waters of the North sea. Accompanying these changes of structure, and due to the same cause, are observed the grandest contortions of the stratified rocks, exposures in the Alpine precipices of those great folds and wrinkles which elsewhere the geologist laboriously studies out from occasional outcroppings, and only sees in full detail as put together in filling up on paper his detached sections. Finely are these exposed in the parallel ridges of the Jura, repeating in them, in the limestones of the oolite, the similar waving structure so grandly developed also in the parallel axes of the Appalachian chain, and its more ancient strata. Upon these oolite rocks of the Jura mountains, which are separated from the higher Alps by the great valley of Switzerland, are found numerous loose blocks, of huge size, of those rocks which are seen in place upon the central Alps, 50 miles across the valley to the south. This phenomenon will be treated of in the article DEBRÉ. And the useful ores of the great variety of metals abundantly distributed through the metamorphic rocks of the Alpine regions will be found more particularly described under the head of the different countries in which they occur, than would be appropriate to the general character of this article.—The great height of many of the Alpine summits gives an extraordinary variety to their vegetation. At the base of the mountains, it

is very rich and beautiful, commingling the productions of a temperate clime with those of a more elevated region, the result of the seeds brought down by the mountain torrents. At the height of 1,600 or 1,700 feet, we find a change; the flora is less beautiful, though still rich and abundant; the *primula auricula* or bear's ear, the *gentiana acaulis*, the *aconitum napellus*, or wolf's-bane, the *trollius Europeus*, and the *ranunculus aconitifolius*, are the most characteristic plants. At 8,800 feet, the *soldanella alpina*, the *crocus vernus*, and two species of rhododendrons, adorn the declivities. At the height of 6,500 feet, all the vegetation of the plains, including maize, and the cereal grains, have disappeared. The common fruit and forest trees have ceased, and dwarfish larch, alder, and birch trees, have taken their places, soon to be succeeded by the stunted pine—*pinus mugho*, and *cembra*, above which, from the line of 7,450 to about 8,500 feet, extends pasture of a very rich and nourishing character, and a flora, which from its peculiar character is distinguished by botanists as alpine. Its principal genera are, androsace, silene, saxifraga, ranunculus, gentiana, and pyrethrum. Of most of these, several species are found. Even amid the eternal snows, Agassiz distinguished several varieties of lichens.—Animal life is abundant throughout the Alpine chains. Vast herds of cattle find pasture on their slopes; the wolf, fox, lynx, and wild cat, abound in their forests; the bear hibernates in their caves; the marmot and the mole burrow in their pasture grounds. Several animals are peculiar to the regions; among these are the chamois, which inhabits the upper limit of the forest region, the mountain goat, and a species of white hare; among the birds of prey, the *lammergeyer*, a gigantic vulture, is peculiar to the Alps, and, with the eagle, commits serious ravages on the sheepfolds of the loftier pasture grounds. Nearly one-half of all the known birds, resident, or of passage, in central Europe, inhabit the Alps. The number of reptiles is not large, but four or five species of them are not found elsewhere. In the valleys of the Hautes Alpes, the Basses Alpes, Isere, Aosta, and the Grisons, as well as some other of the narrow and ill-ventilated ravines of the Alps, a large proportion of the inhabitants are affected with goitre, an enlargement of the thyroid gland, which gives to the person a dewlapped appearance. Among these people, also, there is a fearful amount of cretinism, a species of idiocy, supposed to depend, in part, upon the climate, and perhaps also upon the imperfect nutrition of the system. It was for the relief of these unfortunate creatures that Doctor Louis Guggenbühl established his asylum for cretins, upon the Abendberg, in 1842. Similar institutions have since been organized at other points in the Alps.—The Alps were formerly deemed almost impassable. Even large bodies of men, hemmed in by the deep snows, perished miserably in the attempt to

cross them, and Hannibal's bold passage over them was considered, for ages, a more daring feat of military prowess than his subsequent victories. Now, however, nearly every portion is crossed by one or more good roads. There are 16 passes over the Alps, all but 2 of which are practicable for carriages. Of these, the most noted are that of Mont Cenis, built by the order of Napoleon, in 1805, and now the most frequented of all the great routes which intersect the Alpine chain. It is 80 miles long, 18 feet wide, and 6,778 feet above the sea level, and leads from the valley of Arc in Savoy to Turin; the pass of the Great St. Bernard, 7,963 feet in height, is celebrated as the route over which Napoleon crossed in 1800. Near this pass is situated the Hospice St. Bernard, whose charitable inmates have rescued so many travellers from death amid Alpine snows; the pass of St. Cervin, 11,096 feet above the sea-level, between the Great St. Bernard and the Simplon, is the loftiest in Europe; the pass of the Simplon, one of the noblest monuments of Napoleon's genius, is 6,578 feet high, 86 miles in length, and 25 feet wide throughout. It is nowhere too steep for heavy wagons; the pass of St. Gothard, 6,890 feet in height, is the principal carriage road over the Lepontine Alps. There are five good carriage roads over the Rhetian Alps; the lowest of which, 4,400 feet in height, connects the valleys of the Inn and Adige, and is much travelled.—Among the best authors, who have investigated the physical geography and geology of the Alps, may be named De Saussure and Bourrit, in the latter part of the last century; König, *Reise in die Alpen*, 1814; Bakewell, *Travels in 1820-22*; Ebel, *Manuel de Voyageur en Suisse*; Necker, *Etudes géologiques dans les Alpes*, 1841; Agassiz, *Travail sur les Glaciers de la Suisse*, 1841; Forbes, *Travels through the Alps of Savoy*, 1843; Siliman, *Travels in Europe*, 1852; Niepce, *Traité du Goitre et du Cretinisme*, 1845. Tschudi's *Alpenleben* is perhaps the most interesting and agreeable book on the Alps ever written. Albert Smith, Cheever, Bayard Taylor, and others, have also described the scenery of the Alps very minutely. For the geology of the Alps, see a memoir by Prof. Sedgwick and Sir Roderic Murchison, in the *Transactions of the Geological Society*, 2d series, vol. iii.

ALPUJARRAS, a mountainous region in the old province of Granada, in the south of Spain, lying between the Sierra Nevada and the Mediterranean. After the taking of Granada by Ferdinand, the citizens were banished to this district, and at the present day the inhabitants retain the traces of their Moorish descent. The Sierra de Gador, the highest part of the range, rises 6,550 feet above the sea level, and is covered with snow for two-thirds of the year.

ALQUIER, CHARLES JEAN MARIE, baron, a French diplomatist, born in 1752, died Feb. 4, 1826. He took an active part in the principal events of the French revolution, but after the year 1798 devoted himself exclusively to diplomacy,

and was sent on important missions to Bavaria, Naples, Rome, Stockholm, and Copenhagen. After the restoration, in 1814, he was recalled to France, and his name being included in the proscription list of 1816, he retired to Villvoordue, near Brussels, but only for a short time, as through the influence of a generous friend, he was permitted to return to France, where he lived, for the rest of his days, in retirement.

ALRAUNEN, or ALRUNEN, the name given to certain wise women among the ancient Germans. These women were supposed to have a knowledge of the future, and were employed in the sacrifice of victims to the gods. They were accustomed to go about with bare feet and dishevelled hair, wearing a long white robe, confined with a brazen girdle. It is supposed that the passage in Tacitus, where the historian speaks of the goddess Aurinia, as being worshipped by the ancient Germans, may have reference to these women.—The name is also applied by the Germans to certain little figures carved in the human shape out of the roots of the mandrake, and carefully and secretly preserved and cherished, in the belief that they will bring wealth to their possessor. Their possession is, however, supposed to be dangerous to the welfare of the soul.

ALREDUS, one of the earliest of the English historians, was born at Beverley, Yorkshire, and died in 1129. His most important work is in the form of annals. It embraces a history of England from the time of Brutus to that of Henry I., and is well and accurately written, in Latin.

ALSAOE, one of the former provinces of France, now forming the departments of Haut and Bas Rhin, was bounded north by the Palatinate, east by the Rhine, south by Switzerland, and west by Lorraine. It was formerly part of the dominion of the emperor of Austria, but was transferred to France by the treaties of Munster and Ryswick. It is extremely fertile, and produces corn, wine, flax, tobacco, and madder, in abundance. Mining and manufactures constitute its most important industrial interests, however. Copper, iron, lead, and coal are found, and a valuable salt spring, in the northern part, yields a considerable amount of salt. Cotton, linen, and woollen fabrics, are produced in large quantities, and swords, firearms, and other hardwares, are fabricated from the ores of its mines. Thousands of casks of the mineral waters of Seltz, a town of the province, are annually exported. The inhabitants adhere tenaciously to the customs of their ancestors. The German language is chiefly used by the peasantry.

ALSAGER, THOMAS MASSA, for many years one of the official assignees of the court of bankruptcy, England, was born at Surleiton, Surrey, in 1779, and died at his house, Queen square, London, Nov. 19, 1846, from the effect of wounds inflicted by his own hand on the 6th of the same month.—Mr. Alsager had been for

25 years prior to his decease attached to the London "Times," and habitually wrote the "city article" for that journal, which was read with great attention from the well-known and universally acknowledged financial ability of the writer. During the financial revulsion in England of 1845-'6, known as the "Railway Panic," Mr. Alsager in conjunction with Mr. W. F. Delane, recently deceased, and at that time general manager of the "Times," speculated deeply in several stocks, and it was alleged, used the columns of the "Times" to raise their price far beyond their real value. This allegation having reached the ears of the proprietors of the "Times," led to an investigation, the result of which was that Mr. Alsager and Mr. Delane were both requested to resign their appointments on the editorial staff of the paper. The sudden change from active and honorable employment to a life of undignified idleness, weighed very heavily on Alsager's spirits, and on Nov. 6 he committed the rash act which caused his death. Although the wounds which he inflicted on his throat and other parts of his person were very severe, the eminent surgeons in attendance hoped at one time to be able to save his life. Inflammation, however, set in on the 12th day, and, on the following day, Alsager breathed his last. Mr. A.'s elder brother had for many years represented the county of Surrey in Parliament.

ALSARIO, VINCENTO, an Italian physician, born at Genoa in 1576, died about 1631, practised successfully at Bologna and Ravenna, and for 20 years at Rome. He was the favorite physician of Pope Gregory XV., and the author of various valuable medical works. In 1595, when only 19 years old, he published at Lucca a small treatise, *De Invidia et Fascino Veterum*, which was reprinted in the 12th volume of the *Thesaurus Antiq. Roman.*

AL SEGNO, an Italian phrase, signifying to the sign, and used to denote repetition in music. It directs the performer to return to the sign marked :g: and repeat the passage.

ALSEN, a Danish island, situated in the Little Belt, in long. 9° 55' E. and lat. 55° 12' N. It is about 20 miles long, and 8 wide, containing 125 square miles; is very fertile, and one of the most beautiful islands in the Baltic. Population, 22,500. Its capital, Sonderborg, has 8,100 inhabitants.

AL SIRAT (the path), a bridge from this world to the next, over the middle of hell, which must be passed by every one entering the Mohammedan paradise. It is as fine as the edge of a razor. The deceased pass with rapidity proportionate to their virtue, and the sinful load of the wicked precipitates them into the gulf beneath.

ALSOP, ANTHONY, an English divine and poet, was educated at Christ church, Oxford, where he took the degree of M. A. in 1698, and of B. D. in 1706, and died June 10, 1726. In 1698 he published *Fabularum Aesopiarum Dilectus*, a work which is praised by Dr. King,

and ridiculed by Bentley. Some of his English poems are in "Dodsley's Collection," and several in the early volumes of the "Gentleman's Magazine." Some years after his death, which was caused by his falling into a ditch before his garden door, a volume of Latin odes of his composition was published.

ALSOB, RICHARD, an elegant and witty poetical writer, and an accomplished linguist, was born at Middletown, Connecticut, Jan. 23, 1761, and died of an affection of the heart, at his residence in Flatbush, L. I., Aug. 20, 1815. At the age of five, he lost his father, and was left the eldest of eight children. He studied at Yale college, but did not graduate; and indeed, he seems to have applied himself with especial diligence to the study of the languages of Europe, for the acquisition of which our colleges then furnished very scanty facilities. He made himself ultimately a master of French, Spanish, Italian, Greek, and Latin, and at different times translated works in all these tongues. At Hartford, in August, 1791, appeared the first number of the series of satirical papers, called "The Echo," a publication projected, and almost entirely composed, by Alsop and his friend Theodore Dwight. The name of the work is derived from the character of its contents, which are burlesque imitations or parodies of newspaper articles, public orations, and governors' speeches and proclamations of the day, among which abundant material for ridicule was easily found. Twenty numbers of the "Echo" were issued, between 1791 and 1805. During that period the character of the work underwent a total alteration, and what was commenced as a mirth-provoking newspaper essay, terminated in the bitterest political satire, directed against the men and measures of the democratic party. From the character of his other productions it may be inferred that the portion composed by Alsop was of a less bitter and scorching character than the contributions of Dwight. In 1800, he published a poem to the memory of Washington; in 1806, the "Enchanted Lake of the Fairy Morgana," translated from the second book of the *Orlando Innamorato* of Berni, and in 1808, a translation of the "Geographical, Natural, and Civil History of Chili," by the Abbé Molina, a native of that country, and a member of the order of the Jesuits, recently expelled by the government. In 1815 he edited a narrative of the "Captivity and Adventures of J. R. Jewett among the Savages of Nootka Sound." He left also a number of unpublished translations from the French, the Italian, and the Greek.

ALSOB, VINCENT, an English nonconformist divine, born in Northamptonshire, was educated at Cambridge, and after taking deacon's orders, resided for some time at Oakham, where he taught in the free school. In 1662 he was deprived of his rectory at Wilby, in Northamptonshire, for nonconformity, and was imprisoned for six months for praying by a sick-bed, afterwards. Although gratified at the

change of government in 1688, he always spoke well of King James, who had pardoned his only son, when convicted of treason. The rest of his life was devoted to his clerical duties. He died in May, 1703, at a great age.

ALSTED, JOHANN HEINRICH, a German Protestant divine, and one of the most voluminous writers of the 17th century, died in 1688. He was for some time professor of philosophy and divinity at Herborn in Nassau, and afterward at Weissenberg, in Transylvania. Among his writings are his "Encyclopædia," in two large folios, published in 1630, the most complete work of the kind that had then appeared, his *Theaurus Chronologicus*, and *Triumphus Biblicus*, the last intended to prove that the principles of all arts and sciences are contained in the Scriptures. The two former were highly esteemed. His treatise, *De Mille Annis*, published in 1627, maintains that the millennium was to commence in 1694, when the government of the earth would be given to the saints.

ALSTON, CHARLES, a Scotch physician and botanist, born at Eddlewood in 1683, died Nov. 22, 1760. He studied at Glasgow, where the duchess of Hamilton, to whose family he was related, encouraged him very warmly in his efforts to achieve distinction in his profession, and after having studied under Boerhaave, and taken his degree at Leyden, he settled at Edinburgh, where in conjunction with Alexander Munro, Rutherford, Sinclair, and Plummer, he exerted a highly beneficial influence upon the welfare of the Edinburgh university. He became attached to it as professor of botany and materia medica, and in 1716 was appointed director of the horticultural garden. He is author of *Tirocinium Botanicum Edinburgense* (1753), in which he censured the sexual system of Linnaeus. In 1770 he published in two volumes his lectures on materia medica. He contributed also to the Edinburgh "Medical Essays," various dissertations on opium, pewter, lime, &c. Dr. Mutis, a botanist of New Granada, has given his name, "*Alstonia*," to a new genus of plants.

ALSTON, JOHN, a merchant of Glasgow, and director of the asylum for the blind in that city, to whom the blind in England and this country are indebted for some of the best books in raised letters which have been published. Mr. Alston had been for some years deeply interested in the instruction of the blind, when in 1832 the society for the encouragement of the useful arts in Scotland offered a gold medal valued at 100 dollars for the best form of letter adapted to relief printing for the blind. Mr. Alston and Mr. Taylor of Norwich were constituted referees. Among the alphabets offered was one in Roman capitals, which, after some modification by Mr. Alston, to render it more legible by the blind, was adopted by the society. From this time Mr. Alston devoted his energies and his means, together with what he could obtain from the benevolent, to the work of supplying the blind with books. The

cost of stereotyping and publishing these, in the large letter which is necessary for reading by touch, is very great, yet Mr. Alston succeeded in publishing the Scriptures in 19 volumes, and 23 volumes of miscellaneous works, beside maps and cards. Mr. A. died in 1846, greatly lamented not only by the unfortunate class for whom he had accomplished so much, but by all who knew him.

ALSTON, WILLIS, of Halifax county, North Carolina, was for more than 20 years a member of congress, and chairman of the committee of ways and means in 1812, always an important post, but especially so during a war with a great nation like England. He died April 10, 1837. He enjoyed a high reputation for decision and unchanging consistency in his opinions.

ALSTROEMER. I. JONAS, a public spirited Swede, born of poor parents, at Alingsås in West Gothland, Jan. 7, 1685, died June 2, 1761. He made a fortune in England, by commercial speculations, and then returned to his native land. In partnership with Nicolas Sahlgren he established himself at Gothenburg, introduced into Sweden improved breeds of sheep, the culture of potatoes, and of drugs used in dyeing, established refineries of sugar, and contributed to the formation of the Levant and East India companies. For these services he was ennobled, and had a statue erected to him on the Stockholm exchange. II. CLAZ, his son, was a botanist, born at Alingsås, Aug. 9, 1786, died March 5, 1796. A devoted pupil of Linnæus, he collected for him in his rambles over Europe, particularly Spain, various specimens of flowers, the most remarkable of which was that of a Peruvian plant which he found in the house of the Swedish consul at Cadiz. This plant was extensively cultivated under the name of *Alstroemer lilies*, or *incas*, and Linnæus classes it among the genus of *amaryllidaceæ* under the denomination of "*Alstroemeria*." Claz was the author of an essay on the *simia Mamon* (a species of ape), which was published in the "*Memoirs of the Academy of Stockholm*," in 1766. The results of his botanical explorations in Spain are given in the "*Memoirs of 1770*."

ALT, a musical term, abbreviated from the Italian *alto*, high, and applied to those tones in the scale of sounds which lie between F, on the uppermost line of the treble staff, and G of the octave above.

ALTAI, an extensive mountain system in central Asia, surrounding the sources of the Irish and Yenisei. The Altai proper lie between 87° and 97° E. long., but its branches or continuations stretch under various names westward to Lake Balkash, and eastward to the gulf of Okhotsk, and thence north-east to Behring strait, having an entire length of about 4,500 miles, and a breadth varying from 400 to 1,000 miles. It was formerly supposed that the Altai were connected with the Ural mountains, and also with the Thian-Shan or Celestial mountains, but it is now known that an im-

mense tract of low country separates the western extremity of the Altai from these two ranges. That section of the chain lying between long. 80° and 87° E. consists of an extensive mass of high rocks, furrowed by narrow valleys and rapid rivers, and has received the name of Egtag Altai. It occupies 5½ degrees of latitude, has some elevations 9,900 feet above the level of the sea, or more than 8,000 feet above the line of perpetual snow, and its mean elevation is about 5,000 feet. The physiognomy of these mountains is peculiar. While the highest parts of the Alps are peaked and notched and irregular, the summits of the Egtag Altai are almost level plains, occupying in some places, as on the Korgon table-land, an extent of about 15 miles in each direction. These mountain plains are covered with snow or with swamps, occasionally interrupted by low ridges of rocks or blocks of granite, but rarely does a peak 100 feet in height rise above them. The numerous rivers which rise in these mountains contribute their waters to the Obi, the chief of the rivers of Siberia, either joining the main stream or flowing first into its tributary the Irish. The surface of the higher parts of the Egtag Altai is covered with a breccia of jasper, chalcodony, carnelian, and other minerals, under which is a layer of slate formation, which is succeeded first by a deep bed of dark jasper, and then by a substratum of the most perfect red porphyry. Granite is visible only on the lower part of the mountains where it forms regular strata, dipping somewhat toward the principal valleys. On the western edge of the mountains, the granite likewise occupies the exterior heights, and Humboldt describes a district extending more than 16,000 feet in length, where the granite, lying horizontally, has been burst through by a mass of porphyry which now overtops it. The mineral riches and the botany of this mountain region are similar to that of the Altai proper, which lies immediately eastward of it.—The Altai proper, or "golden mountain," as it is named in ancient Chinese authors, and in some of the Byzantine historians, doubtless received its name from its abundance of precious metals. It was formerly the seat of the Mongols, in whose traditions it is famous, and is at present occupied mainly by the Oalmucks. It consists of several chains found chiefly between 48° and 52° N. lat., which have a mean elevation of nearly 5,000 feet, and send down numerous streams to the Yenisei. One of these, the Kolyvan branch, declines northward to the level of the steppe of Baraba, is about 70 miles in extent, and its highest summits do not much exceed 8,000 feet in height. Smejeuskeja Gora, or "the Mountain of Serpents," 1,282 feet above the level of the sea, was formerly its richest mining station. It is surrounded by higher mountains and deep ravines, and is joined to the Snowy mountains by an elevated plateau. The Snowy mountains differ from all the others, in presenting insulated and sharp peaks. Broad steep valleys, with no

other vegetation than lichens and dwarf-birches, lie between their summits, and afford pasture in summer to elks, stags, and reindeer. The Bielki, Korgon, and Bashalatsk, are branches of the Snowy range. The mountain plateau of the Koksoo is 8,968 feet in height, and is a complete desert, strewn with the debris of decomposed rock. From one of its heights, the Ledebuhr, may be had a beautiful view of the neighboring ranges, their sunny dazzling summits contrasting finely with the obscurity of the deep valleys and the verdure of the lower slopes. The village of Uimon, near the juncture of the Koksoo and the Uimon, is 3,354 feet above the level of the sea. The highest summit of the Altai that has been measured is the Ilatiz-koikanun, 10,785 feet above the sea. The Rosypony-kanun, is celebrated for the great masses of beryl and colored crystals found in its cavities. The scenery of these mountains presents many striking features. Near the foot of one of the snowy mountains is the "White Lake," a beautiful sheet of water, with an island in the middle. The numerous rivers flow rapidly with full streams, and the various forms and colors of the rocks give considerable variety of landscape. The most impressive landscape is presented by the banks of the Katoonya, a river in the heart of the mountains. Fields of perpetual snow and glaciers appear, from the midst of which rise numerous rocky points, ragged cones and pyramids. The river passes through 2 walls of rock, which rise at one place into 2 towering peaks, called the pillars of the Katoonya, and which are among the highest summits of the Altai mountains. On the low banks, near the foot of the mountains, poplars, willows, thorns, and other bushes abound. Poplars, birches, and the hawthorn, fill the lower valleys. The slopes are covered with forests of larch, mingled with birch and fir. Birch ceases to grow at 4,500 feet, but the larch and other trees continue to a much greater elevation, though they are stunted in growth, and extend their branches along the ground. On the table-lands of the summits only a few dwarfish firs are found. Obscure legends of the riches of the Altai mountains prompted Peter the Great to frequent but unprofitable military excursions to these regions. Copper ore was discovered by the Russians in 1728, and in 1736 the mines of Smejeuskeja Gora, rich in gold and silver were, fully opened. This mine is the property of the crown, and in 1827 yielded 40,000 lbs. of silver in mass, nearly as much more pure silver, and 26 lbs. of gold. Since then it has begun to be exhausted, and the quantity extracted from it has much diminished. The total value of the gold and silver yielded annually by the mines of the Altai is about \$1,000,000, of which 75 per cent. is clear profit. Beside this, copper, lead, iron, and a variety of precious stones, are also produced. The Calmucks, a Mongol tribe, still nomadic and pagan, occupy the south-east-

ern portion of these mountains. The other parts are little inhabited. Some of the deep valleys serve as places of concealment to bands of Russian and Chinese deserters, and on the high table-lands parties hunt various kinds of wild animals, as the sable and the martin, for their valuable furs.

ALTAMAHA, a river in Georgia, about 140 miles long, which is formed by the confluence of the Oconee and the Ocmulgee, in the south-east central part of the State. Its course is south-eastward, through sandy plains and pine barrens to the Atlantic, where it empties, about 12 miles below Darien, and about 60 miles south-west of Savannah. For vessels of 30 tons it is navigable through its entire extent.

ALTA MURA, a town in the province of Bari of the kingdom of Naples, lying at the foot of the Apennines. It is well built, and has a fine cathedral, founded by Frederic II. Population, 16,000. It was the ancient Lupatia.

ALTAR. This word is derived from the Latin *altus*, and properly signifies "a high place." It is used exclusively in a religious sense, and means a place or structure, usually elevated, on which to perform certain religious services. The use of altars in religious worship reaches back beyond the historical era, and belongs to the race, not to any one religious system. This shows that either they owe their origin to some specific divine direction, when the race was young, or to some universal and spontaneous conception of the human mind. The earliest account we have of the altar (Gen. viii. 20) shows that it was used for the offering of sacrifices, and would seem to intimate that such had been its use previous to this, in the antediluvian world. Of that we have no account. No mention is made of any such construction on which Cain and Abel made their "offerings to the Lord." Passing further down in Biblical history, we find altars sometimes built apparently as mere memorials of some religious event, and sometimes with the further idea of being accompanied with and used for a distinct act of worship, as a more complete testimonial of gratitude, and to add solemnity to the occasion, as where Jacob built an altar, and poured a drink-offering thereon. Generally, however, we find the idea of sacrifice attending the altar, down through all history. In the Jewish system there were 3 principal altars, viz.: of incense, burnt offering, and shew-bread. In all of these was more or less completely involved the sacrificial idea.—Among the surrounding heathen nations, the same custom of erecting altars for purposes of worship, may be traced to the earliest antiquity. The altars of Baal, that god of the oldest pagan cultus, are frequently mentioned in Scripture. That the general purpose of them was the same as that of the Jewish altars is evident from the facility with which they were convertible in the sudden and apparently fickle religious revolutions of the Jews from Judaism to idolatry and the reverse. Coming down to the times of the Grecian and

Roman worship, we find altars in use among them erected to the various gods they worshipped. The services of the altars varied according to the character and functions of the gods to which they were dedicated. These altars seem to have had inscriptions upon them indicating the divinity to which they were dedicated. Thus Paul found one in Athens dedicated to the "unknown god." Coming down still further into New Testament and Christian history, the apostle says, "we have an altar" (Heb. xiii. 10), an expression which has usually been referred to Christ. The materials used in the construction of the ancient altars were various. At first they were probably rude stones. In Egypt they were highly wrought with sculptured representations of the gods. The Israelites at their exodus, were therefore commanded to make their altars of earth, so that they could not violate the second commandment. Afterward they were made of shittim wood and cedar, overlaid with precious metals. The Greeks and Romans made them of earth and rude stones at first, then of highly sculptured stone. There are to this day many cairns or stones in the northern part of Britain, which were probably ancient altars to Baal. Similar structures are also found on the high tops of the Anti-Libanus range, by eastern travellers. The tower of Babel is generally supposed to have been intended for such a purpose, and the tower of Belus, afterward erected on the same site, actually to have been thus used. So also many of those pyramidal structures found in Mexico and the valley of the Mississippi, and in South America. The form of altars has also varied among various nations and at different times, as also their elevation. The Jews were forbidden to go up to their altars by steps. In the Latin, Greek, and other oriental churches, the altar is an elevated structure, on which the priest offers the sacrifice of the mass. In the Roman Catholic church, a permanent altar is a solid structure, the top of which must be a solid slab of stone. Within the altar is a hollow receptacle for the relics of martyrs or other saints, called the sepulchre. The altar is consecrated by a bishop with chrism. A portable altar is a small slab of stone, usually marble, consecrated and containing relics, which is placed on temporary or ordinary wooden and unconsecrated altars, in such a position that the oblations can be placed on it. Where there is sufficient wealth to permit it, the most costly marbles are used in the construction of altars, and the most sumptuous decorations are employed in their adornment. On special festivals they are usually decorated with flowers. Altars on which the sacrament is reserved have a tabernacle, made in the shape of a small temple, some of which are master-pieces of artistic skill, and covered with beautiful sculptures. In the East the altars are not essentially different from those used in the West. Instead of a tabernacle, they have an urn or casket suspended from the ceiling, in which the consecrated hosts are kept.

In some Lutheran churches the altar has been retained. Some of the ancient altars remain also in the English churches, though they have usually been removed or covered in some way, or at least disused. Generally speaking, altars have been abolished in the Protestant churches, and the existence of any such thing as an altar in pure Christian worship denied. In the Protestant Episcopal churches of Great Britain and the United States, there are, and always have been, many who advocate the use of an altar in place of a common table, and solid altars are to be seen in some churches; occasionally even very beautiful altars of marble, with emblematic devices, rich altar cloths, altar pieces, and conspicuous crosses. The liturgy, however, substitutes the word "table" in place of "altar," which occurs only in one or two occasional offices. In the Roman Catholic church, the material fabric and exterior arrangement of the altar are not regarded as in any way essential or prescribed by the divine law. All the regulations of the church in these matters are merely enacted for the sake of promoting decorum and reverence in the services of religion, and symbolizing the doctrine of the sacrifice of Jesus Christ on the cross and in the eucharist. It is unquestionable that the first altars used in the Christian church were of wood, and were in the shape of tables. They were afterward made nearly in the shape of the ark of the covenant in the Jewish temple. Tombs were also frequently used as altars, whence the present form is evidently derived. The earliest Christian writers use the words *mensa sacra*, *mensa Domini*, *εὐχαριστήριον*, and *altare*, indiscriminately as convertible terms. In the small early churches the altar stood on the floor of the sanctuary; in the churches of the fourth century, which were larger, it was elevated on a platform, and it was subsequently elevated still more so as to be reached by an ascent of several steps. Until the thirteenth century it stood in the middle of the sanctuary, and the priest stood behind it, facing the people, as is still the case in the Lateran basilica. Afterward the altar was placed against the wall, or a screen, which occasioned the change in the posture of the priest. This seems to have been peculiar to Rome, however, as elsewhere there is no record of a change in this respect. The high altar is the principal altar in a church which has several, and is situated in the most conspicuous part of the sanctuary. The custom of dedicating altars to saints, and placing relics in them, arose from the early practice of erecting altars over the tomb of martyrs. The doctrinal and symbolical significance of this custom is, that the saints, especially martyrs, are members of Christ, and have sacrificed themselves to God in imitation of him.

ALTARDJEMAN, an Arabian traveller, who lived in the middle of the 9th century, and who is known only by the above name, which means Interpreter. He was sent out on an exploring mission by Caliph Vatak-billah to

the Caspian sea and the northern coast of the Volga, principally with a view of tracing the tribes of Gog and Magog, which are so frequently alluded to both in the Bible and Koran. Altardjeman explored Armenia, Georgia, the Caucasus, the country of the Khozars, the Caspian coast, the Ural and Altai mountains, and returned to Mesopotamia by the way of Bokhara and Khorassan. The account of his adventures has been preserved by Edrisi and other authors.

ALTAROCHE, MARIE MICHEL, a French literary man, born in 1811 at Isoire, department of the Puy-de Dôme, connected extensively with Paris journalism, especially with the *Charivari* comic newspaper. He was one of the founders of this humorous print, and its chief editor from 1884 until the revolution of 1848, when he was sent by his native district to the constituent assembly. In 1850, as he was not reelected to the legislative assembly, he left politics, and accepted the office, which he still holds, of director of the Odéon theatre. M. Altaroche is the author of various historical and political essays, and some other writings. His speciality is in the spheres of irony and sarcasm. In these he wields a powerful pen, which contributed much to the great popularity of the *Charivari*.

ALTDORFER, ALBRECHT, a German painter and engraver, born at Altdorf in Bavaria in 1488, died at Ratisbon in 1588, supposed to have been a pupil of Albert Dürer, and is distinguished, in Germany, for the romantic character of his conceptions. His principal painting, "The Victory of Alexander over Darius" is in the museum of Schleissheim, and his "Birth of our Saviour," in the imperial gallery of Vienna. His engravings—96 on steel and 68 on wood—are spoken of by Bartsch.

ATELAND, a district in the province of Bremen, in the kingdom of Hanover, situated on the Elbe: it contains 79 square miles, and 15,000 inhabitants. It is denominated a royal justiceship, and as part of the old duchy of Bremen, has peculiar privileges.

ALTEN, KARL AUGUST, count, a Hanoverian general, distinguished in the wars which followed the French revolution, born in the village of Burgwedel, Oct. 20, 1764, died at Botzen, in the Tyrol, April 20, 1840. His life links together the great movements which agitated Europe during the latter part of the last century and the early part of the present. While he received his military education, Frederick the Great was ruling Prussia and swaying his age, and as Alten passed through the various grades of page, ensign, lieutenant, and drill-master, he was inspired by the martial glory of the king of Prussia. His political principles were in favor of the old legitimacy, and opposed to all constitutional or revolutionary innovations; and during 25 years from the breaking out of the French revolution in 1798, when he appeared in the field as the adjutant of the Hanoverian Field-marshal Freitag, till 1818, he bore arms against France. He fought with dis-

tinction at the siege of Valenciennes in 1798, rescuing by his personal valor Field-marshal Freitag after he was made a prisoner by the French, and the same year he was one of the officers who protected the retreat after the lost battle of Hondschoote. The next year, at the head of the garrison of Meuin, he broke through a superior French force, for which he was advanced to the rank of major. During the neutrality of Prussia which followed, he was made first lieutenant, but, in consequence of the unlucky capitulation of the Hanoverian army at Lauenburg, was obliged to leave Germany, and went to England. He was there appointed first lieutenant in the English-German legion, led in 1805 the light brigade and the advance-corps of the expedition to north Germany, took part in the operations against Rügen and Copenhagen, went with his brigade to Portugal, and covered with it the difficult retreat of Sir John Moore after the battle of Corunna. In 1809 he led the light brigade in the expedition to Walcheren, and before Blissingen, after which, returning to England, he had command of the troops stationed in the county of Sussex. In 1811 he sailed again to Portugal, and under Gen. Beresford gained new laurels at the siege of Badajos and in the battle of Albuera, and was appointed by the duke of Wellington commander of the light division. From this time he took part in all the more important contests of the Spanish war; he fought in the battles of Salamanca, Vittoria, the Pyrenees, Nivelles, Orthez and Toulouse, and commanded for two months a combined force of 80,000 men in the vicinity of Madrid. In 1814 he was made lieutenant-general, commanded the Hanoverian troops in the Netherlands, and achieved there some of his most brilliant feats of arms. After the engagement at Quatre Bras, he had retired with Wellington to the vicinity of Waterloo, where, in the battle which decided the future of Europe, he commanded with Collaert and Chassée the centre of the English army. He was stationed in the court of Mount St. Jean, between the roads of Nivelles and Charleroi, a position which became the chief point of attack by the French. There the battle was the most bloody, and Gen. Alten was severely wounded. After his restoration to health and the conclusion of peace, he remained in France as commander of the Hanoverian contingent till 1818, and was in 1815 raised to the dignity of count. He returned to Hanover in 1819 and became minister of war, minister of foreign affairs, and general inspector of the army, and in 1838 was sent as ambassador extraordinary to London, to be present at the coronation of Queen Victoria. He was minister of war under Karl August, when he died while on a journey to the Tyrol.

ALTEN, MARTIN, a Swedish dramatic writer of some note, was born Dec. 21, 1764, and died March 23, 1830. He wrote and translated over forty pieces, chiefly comedies, of which a large number still retain possession of the Swedish

stage. Hammarasköld declares that none of his writings can be considered as valuable additions to Swedish literature, while other critics of equal reputation, maintain that he exerted a favorable influence upon theatrical manners and dramatic style.

ALTENA, a circle in the government of Arnsberg, and province of Westphalia, in Prussia. Its area is 198 square miles; population, 43,000. The soil is poor, and the inhabitants are chiefly employed in the manufacture of coarse iron ware, which is very strong, and meets with a ready sale. The chief town, of the same name, has 4,889 inhabitants, who deal in the manufactures of the district.

ALTENBURG, a duchy of west Germany, separated into two parts by the principality Reuss-Gera, viz., Altenburg, which contains 240 square miles, and Saal-Eisenburg, which contains nearly 270 square miles; pop. 183,000.—Its capital, of the same name, is walled, and is the seat of the higher courts and government offices; has several learned societies; and has manufactories of linen, porcelain, pottery, and optical instruments. Pop. 14,500.

ALTENGAARD, a seaport town of Norway, capital of the province of Finmark. No other grain than barley flourishes here. In 1842, 195 vessels, mostly Russian and Norse, entered the port with cargoes valued at £68,729, and 185 cleared cargoes valued at £72,400.

ALTENKIRCHEN, a circle in the government of Coblenz, and Prussian province of the Lower Rhine. It has an area of 208 square miles, and 87,857 inhabitants, chiefly employed in its iron, lead, and copper mines. The district was terribly ravaged in 1796 by the French army.

ALTEN-OETTING, the *Ponsoni* of the Romans, and the *Aulinga villa* of the middle ages, a small town on the Mœre, in one of the most beautiful and fertile vales of Upper Bavaria. It is annually frequented, on account of its famed picture of the Virgin, by many thousand pilgrims from Austria, Bavaria, and Suabia, and may be called the Loretto of the Germans. The Jesuits formerly had a college here, which was suppressed in 1773, and has been succeeded by an educational institute under the direction of the disciples of St. Alphonso Liguori. Alten-Oetting was in the 9th century a long time the residence of Karlman, the eldest son of Louis the German. Several German emperors, among whom are Henry III. and Henry IV., have held their court here. Leopold I. and other princes of the house of Hapsburg made frequent pilgrimages hither, availing themselves of the opportunity to form political and social ties with the dukes and electors of the family of Wittelsbach. Tilly, the hero of the terrific sack of Magdeburg, is here buried, with other members of his family, and his name is given to the chapel which contains his tomb. Since Maximilian I. many princes and princesses of the Bavarian house have been entombed here, in the sacred chapel.

ALTENSTEIN, a mountain-castle in Saxe-

Meiningen, not far from Eisenach, on the southwest slope of the Thuringian forest. It was the residence of Boniface, the apostle to the Germans, in the 8th century, and just behind it is the place where Luther was secreted by the elector Frederic in 1521. The names of "Luther's tree" and "Luther's fountain" perpetuate the memory of the great reformer's life during his retirement. The tree stood till 1841, when it was shattered by a tempest, and a part of its fragments are preserved in the church of Steinbach; a small monument marks the place where it stood. Since 1798 Altenstein has become the summer residence of the court, and has been much improved and embellished, and surrounded by a splendid park. In 1798, in building a causeway, a grotto was here discovered, which is among the most remarkable natural curiosities of Germany. It is of vast proportions, and through its whole extent flows a rapid stream of water sufficiently deep to bear barges, and turning a mill at the place where it issues from the earth. The entrance to the cavern is through a subterranean gallery, and to one standing on a balcony within, the echoes of the falling waters make a gentle music, and the imposing impression of the natural scene is heightened by works of art, among which is a temple built in the midst of the stream. This cavern is a romantic and fashionable resort for bathers during the summer.

ALTENSTEIN, KARL (Baron von Stein), a Prussian minister of state, born at Anspach, Oct. 7, 1770, died at Berlin, May 14, 1840. He was called by Hardenberg into the ministry at Berlin in 1799. During the war of 1806 he fled with the court from Berlin to Königsberg, and, after the conclusion of the war by the treaty of Tilsit, he became the head of the department of finance. He also took a principal part in the foundation of the university of Berlin in 1809. In 1815, he was sent with William von Humboldt to Paris, to present the claims of Prussia for the restoration of the treasures of art and literature carried from the country by the French armies; and in the same year was made a member of the commission for determining the boundaries of the Prussian possessions in Westphalia, and in the provinces of the Rhine. After his return to Berlin, he was made minister for educational and spiritual affairs, an office first instituted in 1817; and in this position he rendered lasting service to the universities, gymnasiums, and schools. Under his direction the university of Bonn was founded, and useful reforms introduced into the several branches of popular instruction. He also regulated the relations of the church, in newly-acquired provinces, to the central government. Though his distinction is only as a man of practical and administrative abilities, he was one of the most zealous partisans of the philosopher Fichte.

ALTER, FRANZ KARL, a learned German Jesuit, born at Engelsberg, Silesia, in 1749, died in 1804 at Vienna, where he was attached to

the college of St. Ann as professor of Greek. He devoted himself particularly to the study of philology and exegesis of the scriptures. He contributed to the scientific press of Germany many valuable papers on theological and classical subjects, also an essay on Georgian literature.

ALTER EGO, a term in use in the chancery of the two Sicilies, to signify the king's deputy who exercises all the kingly rights when the king himself takes flight from his capital. The crown prince was appointed alter ego by his father Ferdinand IV., on the occasion of the popular rebellion of 1820.

ALTERATIVES, a term applied by modern writers on medical science, in a somewhat obscure manner. A certain class of substances are denominated "alteratives" in manuals of therapeutics. The effects produced by these substances administered in comparatively small and frequent doses, are practically known, but the *modus operandi* is a mystery; and as the same substances in large doses act as emetics or purgatives, or poisons, a name was required to designate the peculiar effects of these substances administered in minute doses; and the most appropriate word that could be found, apparently, was the word "alterative." It is, however, an obscure term, and should be replaced by something more rational and definite. The principal substances used as alteratives, are iodine, bromine, mercury, and their respective combinations with potassium and other substances. Arsenical preparations are also used as alteratives, in infinitesimal doses. They are mostly used in chronic diseases; cutaneous, scrofulous, and syphilitic affections. It is supposed, says Dr. Delasiauve, that these medicines act by penetrating into the minute structure of the organs, modifying the atomic arrangement and the modes of action of the tissues, producing an internal motion which causes a disaggregation of the liquids, stimulates the absorbents, and by that means effects a resolution and absorption of all tumors and engorgements. This, of course, is mere hypothesis; the simple fact is that they effect a change, and that change is sometimes very good. Alteratives do not produce any immediate or very perceptible effect, but, when properly selected, they gradually conquer the disease and bring the body to a healthy state. The dose is relatively small and frequently repeated, though not equal in all cases; for some medicines are less powerful than others, and require comparatively larger doses, even when administered as alteratives. Many substances besides those mentioned above are now used as "alteratives" in small doses, the effects of the same substance being more or less immediate, and temporary, or slow and lasting, according to the dose administered. Ten grains of ipecacuanha, for example, taken with some fluid, act as an emetic; 3 grains will cause a feeling of nausea and loss of appetite; while half a grain or less, taken during several days an hour or so before a meal, will gently

stimulate the stomach, increase the appetite, and for a time improve digestion. This shows different results from the same medicine administered in different doses; and the word alterative, applied to minute doses, contrasts with the words purgative, emetic, sialagogue, diuretic, and diaphoretic, which are generally the effects of large doses of particular medicines. Any powerful medicine given in frequent small doses may be called an alterative, therefore, as it acts continuously, gently, slowly, and when well selected, often most efficiently. Each medicinal substance acts in proportion to the frequency and potency of the dose administered, when given alone, or with a neutral menstruum, such as mucilage or water; but medicines combined, act as different forces moving in opposite directions, and the result is different. Ten grains of ipecacuanha taken alone or in water, act as an emetic; but combined with a strong dose of opium (3 grains of good quality, or 8 of an inferior kind), the ipecacuanha will not produce an obvious effect upon the stomach, but be absorbed into the blood and cause a profuse flow of perspiration, if the patient be kept warm in bed. The opium serves to tranquillize the nerves of the stomach while the ipecacuanha is absorbed, and then the enemy which surreptitiously gained entrance from the mucous membranes of the alimentary canal, while the sentinels were drugged and put to sleep, has to be eliminated by the kidneys and the skin; and hence, in lieu of sudden local action in the stomach, we have general action on the surface of the body. Arsenic is a violent poison in large doses; in minute infinitesimal doses, frequently repeated, it is an excellent cure for ague and fever. Many of the most active and poisonous preparations of mercury are highly beneficial in small doses, although dangerous in large. The word alterative is at present almost as mystical as some of the antiquated terms of alchemy; but, out of the necessity of analyzing the effects of different kinds of alteratives, or the minute doses of different kinds of medicine, will certainly arise a better understanding of therapeutics; as scientific chemistry arose from alchemy. Not that homoeopathy is a satisfactory solution of the mystery of small and frequent doses; for minute doses, which are positive and manifest in their results, are very different from the oceanic dilutions and triturations of a single grain of substance, which, in these imaginary subdivisions and proportions, have apparently no palpable relation to the organism on which they are supposed to act. Small quantities of vaccine, miasmatic effluvia, small-pox, and other kinds of virus, will no doubt inoculate the blood with disease, and spread infection through the organism; but then, again, these are minute portions of appreciable substances; not the mere hypothetical atoms of minute doses submitted to obscure experiment; for there is no certainty that matter of all kinds can, by ordinary trituration and

dilution, be mechanically subdivided *ad infinitum*; and, if it could, mechanical division is no proof of dynamic evolution; and, moreover, it is always possible that the divided molecules are most unequally distributed within the menstruum, and that not a few of the small globules steeped in the medicinal dilution, absorb nothing but the alcohol in which the infinitesimal atoms of medicine have been lost. No disparagement of fair experiment with minute doses is here intended; but the medical profession and the public should be prudent in observing where the relative minuteness of proportion physically ends; and where imaginary subdivision leaves the world of practical proportion to invade the realms of fanciful tenuity. How far the ghosts of atoms act upon the mind, and this again upon the body in disease, may be a question for the metaphysical domain of medicine; but here we are not discussing metaphysics; our object being merely to define the medical term "alteratives" and the practical results of minute doses, as compared with the effects of larger quantities of the same substance. There are numerous varieties of purgatives, emetics, diuretics, and diaphoretics, the effects of which are more or less immediate on the system; and some degree of skill is required in selecting one kind in preference to another, according to the nature of the case; but the proper use of "alterative" doses of medicine is a much more complicated and important branch of medical science and practice than the mere selection of large doses to produce immediate effects. The obscure word "alteratives," therefore, when properly defined, includes the most important branch of medical art and science.

ALTGRADISCA, a fortified town of Austria, in the province of Slavonia, about 16 miles S.W. of Poshega, on the bank of the river Save, nearly opposite Berbir, or Turkish Gradiaka. It has a cathedral, a Greek church, a custom-house, and carries on a considerable trade with Servia and Bosnia. It is the head-quarters of a staff for the military frontier, and is a place of very considerable strength. Population, 2,800.

ALTHÆA, a genus of plants belonging to the natural order *malvaceæ*, named from the Greek, ἄλθα, to cure. They have a double calyx, the outer whorl with from 6 to 9 sepals, and the inner with 5. *A. officinalis*, a species of the genus *althæa*, is the marshmallow, the knowledge of which, in medical botany, is of great antiquity. The mucilaginous roots and leaves of this plant are used in all cases in which emollient or demulcent substances are required. It is a perennial plant with a white, fleshy root, 12 or 15 inches long. The stems are 2 or 3 feet in height, and covered all over with a soft down. The leaves are also covered with down, which gives the whole plant a hoary aspect. The leaves are soft and stalked, the flowers of a pale rose color, appearing in very short clusters from the bosom of the leaves. The corolla is like that of the common

mallow. The demulcent lozenges sold under the name of *pâte de guimauve* are made of *A. officinalis*; they are made in large quantities in the south of France, particularly at Marseilles.—The hollyhock, or *A. rosea*, is another species of the same genus; it grows wild in China.

ALTHEN, EHAN, a Persian of high descent, born in 1711, died in 1774, who introduced madder into France. Young Ehan was sold to an Anatolian planter, who for fourteen years kept him working on cotton and madder. On effecting his escape from slavery, he found his way from Smyrna to Marseilles and Avignon, where the soil seemed to him favorable to the growth of madder. He failed to interest the public mind in favor of his plan, but a French lady, Madame de Clausenette, consented to plant the seeds which he had brought with him from Anatolia. The experiment was successful, and extensively imitated, but Althen, who had thus conferred a great benefit upon France, was left to die in the greatest penury, and on the same day that the tardy honor of a monument in the Calvet Museum at Avignon was paid to him by the French authorities, his only daughter died in despair at the hospital.

ALTHORP, VISCOUNT (GEORGE JOHN SPENCER), an English statesman, and the founder and proprietor of the finest private library in Europe, born Sept. 1, 1758, died Nov. 10, 1834. After having served in the house of commons, in 1783, upon the death of his father, he took his place in the house of lords. Being of a whig family, he adhered to the opposition till the breaking out of the French revolution, when he passed over to the side of the ministry, and became first lord of the admiralty. Though little distinguished as an orator, he showed superior judgment and great purity of character in the management of affairs. Upon the retirement of Pitt, in 1802, he also sent in his resignation. His last public act was to accept the seals of the department of the interior, in 1806, under the ministry of Fox and Grenville. He laid the foundation of his library in 1789 by purchasing the collection of Count Newiczki, but increased it annually, expending princely sums upon it, and searching all Europe to obtain the rarest and most excellent editions of books. The larger part of this library, numbering 45,000 volumes, remains at the Althorp manor in Northampton; another part is in London. The collection is especially valuable for the old specimens of printing, and the first editions of the classics which it contains.

ALTHUSEN, JOHANN, a German jurist, born in 1557, died in 1688, studied at Basel, and in 1590 became professor of law at the university of Herborn. In 1608 he published his *Politica Methodica Digesta*, in which he boldly taught that kings are nothing more than magistrates, that sovereignty belongs to the people, and that, as a natural consequence, they may change and even punish their rulers. In 1604 he was appointed syndic of his native town of Emden,

and when the town got into difficulties with some of the counts of East-Friesland, Althusen defended the civil and religious liberty of the citizens with signal ability. His various writings on jurisprudence and politics are all imbued with the same liberal and enlightened ideas.

ALTIERI, an old, princely family at Rome who occupied a palace in that city, designed by the younger Rossi, and containing the richest treasures of art. Among the works of the great masters found there, was a likeness of Titian, painted by himself, an *Ecce Homo*, by Guido Reni, Christ at the grave, by Van Dyke, 2 landscapes by Claude Lorraine, and several paintings by Salvator Rosa. The last member of this family received in 1669 from Clement IX. the cardinal's hat, and was the next year elected pope, with the title of Clement X. The name passed from him by adoption to the family of the Pauluzzi, who were at the beginning of the present century the dukes of Montevano.

ALTIN, a lake of Siberia, from which issues the river Obi, in long. $85^{\circ} 55'$ E. and lat. 53° N. It is 77 miles long, and 52 broad. This lake, like others in its vicinity, is only raised by the melting of the snows on the neighboring hills, in summer.

ALTING. I. HEINRICH, a German theologian, born at Emden in 1583, died at Groningen in 1644. He was the preceptor, friend, and minister of the elector palatine, and sat as one of the deputies of the palatinate at the synod of Dort. He came near being killed by a soldier at the taking of Heidelberg in 1622. He filled the theological chair of Groningen for 17 years, from 1627 till his death. His works, which are on religious subjects, are numerous. He was also one of the translators of the Bible into Dutch. II. JACOB, son of the preceding, was born at Heidelberg in 1618, died in 1679. He studied at Groningen and Emden, and afterward went over to England, where he was ordained by Prideaux, bishop of Worcester. His determination to reside in England was altered by the offer of the Hebrew professorship at Groningen, which he accepted. Here his method of scriptural teaching was opposed by Samuel des Marets, divinity professor, who impeached Alting as an innovator. The 21 articles of his accusation were carried before the divines of Leyden, who acquitted the accused of heresy, though not of imprudence, and passed a censure upon his accuser for want of moderation. Alting's works were printed in 5 volumes folio by Balthazar Becker, of Amsterdam, in 1687, containing practical, philosophical, and controversial tracts. His *Hebraeorum Respublica Scholastica* forms a separate volume. His knowledge of Hebrew literature was extensive, and he was devoted to this branch of study with singular enthusiasm. III. MENSO, was a Dutch theologian, born 1541, died 1617, pastor and president of the presbytery of Emden, and the author of some contro-

versial writings. IV. MENSO, JR., was a Dutch geographer, born in 1686, died 1718. He was burgomaster of Groningen, and the author of *Notitia Germaniae Inferioris, of Descriptio Frisiae inter Scaldis portum veterem et Amisiam*, published at Amsterdam in 1697 and 1701, and of an unfinished commentary, *Commentarius in tabulam Peutingeri*.

ALTITUDE, is the scientific or technical word for height. The altitude of a triangle is the distance from either corner of the triangle to the opposite side, when that side is considered as the base of the triangle. The altitude of a cone or pyramid is the height of its vertex above the plane on which it stands. The altitude of a mountain is its height above the level of the sea. The altitude of a star is its height above the horizon. This altitude is measured in degrees, a star in the zenith having the greatest possible altitude of 90 degrees. Apparent altitude is that which the star or other heavenly body appears to have, from which the true altitude is obtained by making allowance for the various errors arising from the refraction of the air, the height of the observer, the distance of the body from the earth, &c.

ALTKIRCH, an arrondissement in the department of the Upper Rhine, in France. It has an area of 446 square miles, and is subdivided into 7 cantons and 158 communes. Population, 149,874. The chief town, of the same name, has 8,371 inhabitants.

ALTMUHL, a river of Bavaria, 150 miles in length, rising 7 miles N. E. of Rothenburg, and emptying into the Danube between Ratisbon and Kelheim. The Ludwigs canal connects it with the Regnitz, thus uniting the Rhine and Danube.

ALTO, the part in music which is to be performed by the lowest female voice, and holds a place midway between the tenor and treble. The term is also used to indicate the tenor in instrumental music.

ALT-OFEN (Old Ofen), a municipal town of Hungary, on the Danube, forming almost a suburb of Buda or Ofen, and occupying the site of the ancient Sicambria. Pop. 9,150.

ALTO-RILIEVO, a term designating that species of sculpture, in which the figure stands completely out from the ground, being attached to it only in some places, and in others worked entirely round like single statues; such are the metopes of the Elgin marbles in the British museum. Donatelli's alto-rilievos at Florence, are among the most perfect examples of this sort of art. The largest performance ever executed in alto-rilievo is the stupendous work by Algardi, in St. Peter's at Rome, representing the repulse of Attila by St. Peter and St. Paul.

ALTON, a port of entry in Madison county, Illinois, on the Mississippi river, about 25 miles above St. Louis, 8 miles above the mouth of the Missouri river, and 76 miles S. S. W. of Springfield, Ill. Alton has risen into importance since 1832, when the penitentiary was established there, and having one of the best landings on

the river is now a thriving city. It is connected by railroad with Chicago, St. Louis, and Terre Haute. It has 6 or 8 churches, 9 public schools, 4 printing offices, and several mills and foundries. Extensive quarries of fine limestone have been opened in the vicinity, and coal and timber are abundant. Pop. in 1857, 12,000.—Upper Alton, to the E. about a mile and a half, contains the Shurtleff (Baptist) college, a flourishing institution, with 6 professors, about 50 students, and a library of 2,000 volumes.

ALTON. I. JOSEPH WILHELM EDUARD D', a German naturalist, born 1772, died 1840. Received his first education at Vienna, with a view of entering the army; subsequently he visited Italy and lived for a long time at Tieffurt, near Weimar, where he devoted himself to the study of the fine arts and natural history. He afterward settled at Würzburg, and in 1817 and 1818, in company with his friend Pander, he explored England, Spain, and Portugal, for scientific purposes. On his return, he became professor of archaeology and fine arts at the university of Bonn. He left, on his death, a fine collection of paintings and engravings, part of which were purchased by the university and part by Prince Albert, who was one of his Bonn pupils. D'Alton is the author of the "Natural History of the Horse" and of "Comparative Osteology." These works are accompanied with many superb plates. He also took an active part in Dollinger's and Pander's investigations and publications concerning the development of chickens in the egg. II. JOHANN SAMUEL EDUARD, the son of the preceding, a German physician, born at St. Goar, 1803, died at Halle, July 25, 1854. He continued the "Comparative Osteology" of his father, and published, between 1827 and 1838, 2 volumes on the ostrich and birds of prey. In 1850 he published the first volume of his manual of the "Comparative Anatomy of Man." In 1858 he published *De monstris, quibus extremitates superflue suspensae sunt*, and in 1854, in concert with Burmeister, *Der fossile Gavial von Boll in Württemberg*. From 1834, he was attached to the university of Halle as professor of anatomy. III. RICHARD, count d', was an Austrian general, born in 1720, died 1789. He had the command of the Low Countries in 1787. Though a strict disciplinarian, and a man of bravery, he betrayed weakness during the insurrection in Brabant, 1789, for which he was sent for to Vienna, to clear his character, but he died on the journey. His brother distinguished himself against the Turks, and also against the French at the siege of Valenciennes. He was killed near Dunkirk, Aug. 24, 1793, much regretted as a good soldier and an amiable man.

ALTONA, the second city of Denmark, in point of size, and the most important city of the duchy of Holstein, situated on the right bank of the Elbe, 2 miles below Hamburg. It is well built, is a free port, and enjoys various privileges, favorable to its trade and prosperity.

It was set up by Denmark as a rival to Hamburg, but forms in point of fact only the place of residence for Hamburg merchants. It has 6 churches, a gymnasium, with a library of 12,000 volumes, an orphan hospital, an infirmary, a college, and a mint. It has an extensive trade, and very considerable manufactures. The chief manufacture is tobacco. There are beside, soap and oil works, sugar houses, distilleries, chemical works, rope walks, tanneries, and divers manufactories of cotton, silk, and leather. Its extensive railway connections add materially to its importance; 238 vessels are owned here, and as many as 5,000 enter the port every year. The population was, in 1845, 32,200; or with its suburbs, 87,000. The inhabitants are mostly Lutherans. Altona was burned by the Swedes, in 1718, with circumstances of great barbarity.

ALTON-SHÉE, EDMOND, comte d', a peer of France under Louis Philippe, born in 1810. He entered the chamber of peers in 1836, and became a violent opponent of the government. He was a champion of the famous reform banquet of Feb. 22, 1848. After the revolution of Feb. 24, he was appointed colonel of the second legion of the Banlieue, but in his canvass for the constituent assembly he was not successful. In Dec. 1848, he became president of the electoral democratic and socialistic committee, and the following month of January he was arrested and retained in custody for some time.

ALTOONA, a flourishing village of Blair county, Pa., laid out in 1849, and already has a population of nearly 8,000. It is on the line of the central railroad, to which it owes most of its prosperity, the railroad company having extensive engine houses and machine shops here, in which they employ about 1,500 operatives, in the manufacture of locomotives, railway cars, &c. The village also contains a newspaper office, hotel, and bank.

ALTÖRF, capital of the canton Uri, Switzerland, in a deep, narrow valley near the S. E. extremity of Lake Lucerne, at the N. E. terminus of the path over Mt. St. Gothard, lat. 46° 55' 10" N. long. 8° 37' 47" E. Pop. 1,700. It has a Capuchin convent and an old tower covered with paintings in honor of William Tell, which is said to occupy the spot where he shot the apple from his son's head.

ALTOVITI, ANTONIO, archbishop of Florence, born in 1521, died in 1573. Although nominated archbishop in 1548, he only entered upon the office after a lapse of 19 years, owing to some prejudices which the grand-duke had conceived against him. He was one of the prelates who attended the council of Trent. He was an accomplished theological and philosophical scholar.

ALTRANSTADT, a town of Saxony, at which, in 1706, a treaty was made between Charles XII. of Sweden, and Augustus, elector of Saxony, by which the latter resigned the crown of Poland.

ALUCEMAS, SAN AUGUSTIN Y SAN CARLOS

DE LAS, a rocky island on the coast of Morocco, in long. $4^{\circ} 12' W.$ and lat. $35^{\circ} 16' N.$ It belongs to Spain, and convicts are transported thither, and kept under a guard of soldiers. Supplies are obtained from the neighboring coast of Ceuta.

ALUM. This is a double sulphate of alumina and potash, or other alkali; a transparent salt which crystallizes in regular octohedrons with truncated apices; also in cubical crystals derived from the octohedron. Its taste is sweet and astringent. It possesses acid properties, dissolves metals, and is of specific gravity 1.724. When the water of crystallization is driven off by heat not exceeding $212^{\circ} F.$, the mass puffs up to many times its original bulk; the spongy product is called burnt alum. It is used as a mild caustic. Soda, or ammonia, may replace potash in the combination of alum, without change in the crystalline form. Potash alum is the common kind in use. In France ammonia alum is also manufactured. Soda alum is a native product, found more particularly in South America, but is not known in commerce. Potash alum consists of

1 atom of sulphate of potash,	= per cent.	18.84
1 atom of sulphate of alumina,	= "	86.90
24 atoms of water,	= "	45.46
		100.00

or, otherwise expressed,

Alumina,	10.88
Potash,	9.94
Sulphuric acid,	88.77
Water,	45.47
	100.00

Alum is of great use in the arts for preparing and preserving skins, for mordants in calico printing and in dyeing, for glazing paper, for hardening and whitening tallow in candle-making, for clarifying liquors, and in medicine as an astringent and caustic. Wood impregnated with it is almost incombustible. It is also largely employed for adulterating flour and bread, its effect being to add to their whiteness; but as it also makes the bread indigestible, and promotes dyspepsia, and is sometimes added by the baker, after having already been introduced into the flour by the miller, its use cannot but be regarded as altogether reprehensible. The indigestible quality of London bread is owing to this mixture of alum. It is also introduced into various liquors for disguising or altering their characters.—The *alumen* mentioned by Pliny does not appear to be the same substance with our alum, but was probably sulphate of iron, or green vitriol. The history of alum has been carefully investigated by Beckmann in his "History of Inventions," but he does not succeed in tracing out its origin. It was manufactured, 4 or 5 centuries since, at a place called Rocca, afterward Edessa in Syria, whence the name rock alum. The business was not long after introduced near Smyrna, and Constantinople. It thence extended to Italy, where it was protected against foreign importations by the pope, and was afterward introduced

into Germany. In the reign of Queen Elizabeth, it was undertaken in England by Thomas Chaloner, and successfully prosecuted, notwithstanding the anathemas of the pope. At present, in Great Britain, the business is carried on only at the works he established at Whitby, in Yorkshire, and at some others near Glasgow in Scotland. The mineral substance employed at all these works is called alum-slate. It is a common argillaceous slate, consisting mostly of alumina, and having disseminated through it bi-sulphuret of iron, in the form of pyrites. In Italy, France, Hungary, and some other parts of Europe, a grayish colored mineral, called alum stone, is found and made use of for this purpose. It is associated with rocks of volcanic origin, and contains the constituents of alum in a condition well adapted for a preparation of this salt. In its pure crystallized state, its composition is as follows:

Alumina,	87.18
Sulphuric acid,	88.58
Potash,	11.84
Water,	13.00
	100.00

As obtained in large quantities, it is more or less mixed with foreign substances, as silica, which sometimes composes 60 per cent. of its weight. At Tolfa, in Italy, it is quarried like any rock by blasting with powder. Exposed to a moist atmosphere, it is subject to crumble and effloresce in the course of several weeks. This decomposing operation is hastened by roasting the stone in large heaps, or in calcining kilns, with a slow fire. The stone is then placed in rows between trenches of water, and frequently sprinkled. It falls to powder in a few days, but the watering is still continued for a month. This powder is next boiled with water in leaden vessels, the earthy matters subside, the liquid portion not evaporated is drawn off, and the alum deposited by crystallizing. This is the Roman alum. It is considered as the best and purest quality of commercial alum, and is known by its reddish hue, derived from a slight film of sesquioxide of iron.—Alum-slate is common wherever argillaceous slates occur. It abounds in Canada, and the New England states, and along the eastern range of the Alleghanies. It is an argillaceous slate which contains iron pyrites in considerable quantity, but must be free from lime and magnesia. Often it is subject to decompose by the action of the atmosphere. The sulphur of the pyrites in part sublimes, and the remainder, absorbing oxygen, is converted into sulphuric acid. This combines, a part with the iron of the pyrites, and a part with the alumina of the slates, forming a proto-sulphate of iron which is green copperas, and a sulphate of alumina, which is basic alum, requiring the addition of potash to constitute the cubic alum of commerce. These sulphates, thus formed, effloresce upon the surface of the slates, and may be detected by their color and taste. Slates thus disposed to crumble and produce these

salts are well adapted for the manufacture of both alum and copperas. In Scotland, they are found containing also some coaly matters intermixed, ingredients which serve as fuel in the process of roasting, to which the slates, as the alum stones already described, are first subjected. In this operation, as conducted at Whitby, in Scotland, the piles of slate sometimes reach the height of 100 feet, with a base 200 feet square; but a broader base with less height is more judicious, for too great heat is sure to melt the sulphurets into unmanageable slags. The calcination of one of these great heaps sometimes requires the slow combustion to be kept up for a year, or a year and a half. When once in progress no fuel need be added, for heat enough is given out in the chemical process going on, to keep it steadily continuing till the desired changes are effected. The calcined slates, when the sulphurets are decomposed, and the sulphur converted into sulphuric acid, is combined with the oxide of iron and with the alumina, are placed in large vats and lixiviated, to wash out from them with water the soluble salts. The liquors containing these salts are then boiled, and in Sweden this is ingeniously effected by utilizing the escape heat from the calcining heaps. Some earthy impurities are deposited in this process, and the liquor is concentrated by evaporation into a strong solution of copperas and basic alum. The next process is to run the liquor into large reservoirs, to allow the iron salt to separate by crystallization. The sulphate of alumina held in solution is incapable of crystallizing. It is drawn off with the liquor into other reservoirs, and the proper proportion of alkali added, either in the form of sulphate of potash, hydrochlorate of potash, or putrid urine. Potash or ammonia alum is thus produced, which crystallizes on the sides of the vessel. This is re-dissolved in the smallest quantity of boiling water, and the solution is allowed to remain for a few weeks in large casks, made so as to be taken apart. The alum re-crystallizes, forming a solid shell around the walls of the cask, and when the staves are removed, this shell of alum remains standing of the shape of the cask. It is pierced to allow the liquor to run off, which is added to the liquor of the next operation. The alum, when dry and broken up, is fit for the market. At the works near Whitby, it is estimated that 61½ tons of alum slate make 1 ton of alum.—In the United States, alum is manufactured by treating clay directly with sulphuric acid, and adding potash, either the sulphate or crude carbonate. The cheapness of the product requires that the business should be carried on upon a large scale, and in connection with the manufacture of sulphuric acid. The principal works are those of Mr. N. Lennig, and of Messrs. Powers and Wightman, of Philadelphia, and of the Roxbury color and chemical manufacturing company in Massachusetts. It is also made in Salem, Mass. All these establishments obtain

their clay from New Jersey. A very pure article is requisite, as free as possible from iron. It should be allowed to leach from 6 months to a year before adding the potash, and crystallizing, but this is seldom done in practice.

ALUMINA, pure argillaceous earth, the oxide of the metal aluminum, the base of aluminous salts, and the principal constituent of clay. It is composed of 2 equivalents of aluminum and 3 of oxygen, or, by weight, 100 of the former and 87.7 of the latter. It is a soft, white substance, infusible at ordinary temperatures, without taste, and adhering to the tongue. Melted by the compound blow-pipe, it forms vitreous, transparent globules, almost as dense as rubies. The ruby and the sapphire are the only pure forms of it in nature. Alumina combines with some metallic oxides, and with alkalies, forming salts called aluminates, in which it is the acidifying element; but combined with the strong nitric, sulphuric, hydrochloric acids, &c., it acts as a base. It is prepared by decomposing the sulphate of alumina in solution by adding a solution of carbonate of soda. The soda takes the place of the sulphuric acid, the carbonic acid escapes, and the alumina precipitates. Ammonia may be used instead of the soda. The deposit is collected and washed. It is advantageously employed by some dyers, in the place of alum, for the preparation of acetate of alumina. Could it be procured by some more economical process, which would not involve the loss of the soda, there is no question but this article would come into very extensive use, replacing the more cumbersome salt, the alum, which is of value only for the alumina it contains; and this amounts to but 10 to 12 per cent. of its weight. The basic sulphate of alumina contains from 17 to 18 per cent. of alumina. The pure earth, therefore, would have a very great advantage over these compounds, in saving of cost of transportation. And again, it is readily converted directly into the sulphate, acetate, or hydrochlorate, for the purposes of the dyer, without the expense and trouble of the common processes of double decomposition from the sulphates. It is well worth the attention of chemists and manufacturers to contrive a more economical method of its preparation. Alumina is little used in medicine, but is sometimes employed in diarrhoea and dysentery. Trousseau recommends it particularly for infants.—SULPHATE OF ALUMINA. This salt has been already incidentally treated of as basic alum, or alum previous to the introduction of an alkali. Its rapidly extending use in France, particularly, gives it no little importance, as a salt likely to replace alum, though it may be itself replaced by the pure earth, alumina, which is the only valuable ingredient in either. The objections to the sulphate are its want of uniform composition, and its liability to contain oxide of iron, which destroys its value for some purposes. It often contains sulphuric acid in excess and water in uncertain

quantity, while alum is invariable in its composition. Sulphate of alumina is prepared by treating the purest clays with sulphuric acid; washing the product to separate the insoluble matters; precipitating the iron, that may be present, with muriate of potash, forming Prussian blue; and evaporating to collect the solid salt. Forty-two parts of clay, well prepared and dried, furnish 100 parts, by weight, of crude sulphate of alumina. The salt, as prepared in France, sells for about \$3 per 100 pounds, and contains about 15 per cent. of alumina, which is more than the ammonia alum contains, that sells at a higher price. The other ingredients are anhydrous sulphuric acid 36 per cent., and water 49 per cent. Sulphate of alumina has long been used for preserving animal substances.

ALUMINUM. To Lavoisier, the French chemist, is due the credit of first affirming the probable existence of the metallic bases of the earths and alkalies. This was 20 years before Sir Humphrey Davy established the fact by eliminating potassium and sodium from their combinations. His next discoveries were of the metallic bases of barytes, strontium, and lime. The earth alumina resisted the action of the voltaic pile, and refused to be decomposed by the process which had proved successful with the other compounds. Twenty years more passed, and the existence of such a metal as aluminum still continued problematical. The chloride was first obtained by Oerstedt, and by subjecting this salt to the action of potassium in a crucible heated over a spirit lamp, Wöhler, a German chemist, succeeded in 1827 in separating the metal. Aluminum thus obtained and freed by washing from the chloride of potassium, appeared as a gray metallic powder, which Wöhler regarded as infusible, and very easily oxidized. Twenty-seven years more passed, and in 1854, M. Sainte Claire Deville, professor of chemistry at the *École Normale* at Paris, experimenting upon the aluminum, found its properties very different from those described by Wöhler. Using sodium, of which 28 parts possess the same reductive power as 89 of potassium, he obtained sufficient quantities of the metal to be able to subject it to thorough examination, and furnished specimens of it to the academy of arts. The high cost of sodium, which was then about \$100 per pound, rendered it important to simplify the process of its preparation. This M. Deville succeeded in doing, till he reduced this expense to about 90 cents to the pound. Chloride of aluminum also, which before had been prepared only on a small scale as a novel article in the laboratory, by passing chlorine gas over a mixture of alumina and coal tar, placed in a porcelain tube, was produced by M. Deville upon a large scale in gas retorts, and in a chamber of masonry lined with tiles, at a cost of about 25 cents per pound. Thus prepared it is a yellow substance in crystals possessing considerable density. It is purified of the iron it contains by passing in the reduction process its vapor

over iron filings, heated to 400° C. or thereabouts. The sesquichloride of iron, which is as volatile as the chloride of aluminum, is changed in its properties by contact with the iron, and becomes comparatively fixed. The vapor of the chloride of aluminum, rising from the apparatus, forms colorless transparent crystals. Passed over sodium placed in copper trays, and these inclosed in a tube, the salt was decomposed with the evolution of much heat; but instead of requiring 2½ pounds of sodium to produce a pound of aluminum, which should be sufficient according to the chemical reactions, 10 pounds were actually consumed; and the aluminum was contaminated, and its physical properties affected by a portion of copper taken from the trays. The next improvement in this process, made some time afterward by M. Deville, was in fusing in a crucible a double chloride of aluminum and sodium, with metallic sodium and some fluor-spar, or the very fusible mineral cryolite, as a flux. In this there was no waste of the sodium. The use of cryolite had before been suggested for the preparation of aluminum by Heinrich Rose, and experiments had been made with it by him and by M. Deville. This mineral is a fluoride of aluminum and sodium, composed of aluminum 13.0, sodium 82.8, fluorine 54.2. It is found in Greenland, and is now imported into England for the manufacture, for which its composition so well adapts it. (See *CRYOLITE*.) The double chloride of aluminum and sodium is prepared by passing chlorine gas over a mixture of sea salt, alumina, and charcoal; and as tolerably pure varieties of clay may be used to furnish the alumina for this process, the materials employed are of very little cost—common clay contains about one-fourth its weight of aluminum. The metallic sodium, required with the double chloride, continued by improved processes to be furnished at less expense. It is stated that it has been made in this country by Mr. Monier, of Camden, N. J., at a cost of 25 cents per pound; and estimates are given that by the use of carbonate of soda, costing 4 cents per pound, it may be prepared for even 14 cents. (See article by W. J. Taylor in the "American Journal of Pharmacy," March, 1857, vol. 7, No. 2.) The cheapness of the materials would thus seem to render it probable, that the metal itself will be eventually obtained at a very cheap rate, but the processes employed are not yet so perfected, that this can be definitely known. Not long since the metal sold for its weight in gold. A recent publication states that its present worth is about \$10 per pound; M. Dumas some time ago gave notice to the academy, that it would probably be reduced to one-hundredth of that of gold. In the article above referred to the following estimate of the cost is given of 1 pound of metal:

16 lbs. of the double chloride of aluminum and sodium at 8 cents per lb.	\$1.28
2½ lbs. metallic sodium, at about 26 cents per lb.	79
Flux and cost of reduction	2.09
	<hr/> \$4.00

By the use of less quantities of material, and these furnished at much less rates, the author estimates that one dollar will eventually cover all expenses. In the crucible, aluminum may be freed from scorise by fusible fluxes, and by stirring, as in operations with other metals; and if remelted, nitrate of potash may be used to purify it without danger of oxidizing the metal. When cast in a mould its appearance may be improved by dipping it into caustic potash, and washing with water, and then into nitric acid and again washing.—Aluminum is a shining white metal of a shade between that of silver and platinum. It melts somewhat more easily than the former, and resists the oxidizing action of the air like the latter. Even the acids, nitric and sulphuric, when cold, do not attack it, and it is not tarnished as silver is by sulphuretted hydrogen. In hydrochloric acid it is soluble, returning to the state of a chloride. Its specific gravity varies from 2.56 to 2.67, according as it is cast or condensed by rolling. The metal is thus seen to be of extraordinary lightness, weighing less than glass, and occupying 4 times the space of an equal weight of silver, the specific gravity of which is 10.5; yet it is possessed of other metallic properties, as hardness, tenacity, conductivity, &c., in no deficient degree, and is distinguished for its malleability, and more especially for its sonorousness. In this respect no other metal is to be compared with it. It has some of the qualities of iron, as malleability and ductility, a greater tenacity, and a capacity of combining with carbon and forming a cast metal, which is not malleable. Like iron also it cannot amalgamate directly with mercury, nor be readily alloyed with lead. Many alloys with other metals, as copper, iron, silicium, gold, &c., have been made with it, and the properties it imparts in these combinations are such, that it will probably be extensively used in this way. An alloy of $\frac{1}{2}$ iron and $\frac{1}{2}$ aluminum does not oxidize when exposed to a moist atmosphere. Combined with copper in the proportion of one-tenth, it produces an alloy of greater hardness than bronze, whiter than copper, and which can be worked when hot. One part of it to 100 parts of gold gives a hard malleable alloy of greenish gold color. These properties suggest its probable use in alloys for coin, plate, &c. If used unalloyed it has, by reason of its great lightness, the advantage of going 4 times as far as an equal weight of silver; and as it promises great strength and stiffness, it is probable that it will come into use for many purposes, for which the more precious metals are generally employed.—Beside the methods of procuring aluminum already described, it has also been obtained by Dr. Gore of Birmingham, England, in the form of a metallic coating upon other metals, as copper, brass, and German silver, by the electro-galvanic process. Pipe clay, thoroughly mixed with water, is dissolved in dilute sulphuric acid, or this and hydrochloric acid equally mixed and diluted. The clear liquor is

decanted, and while hot an earthen porous cell is immersed in it, in which is a mixture of 1 measure of sulphuric acid and 10 measures of water, together with a rod or plate of amalgamated zinc. To this the positive pole of a small Smee's battery is connected, and the negative pole to the article to be coated, which is immersed in the hot clay solution. In a few moments a fine white deposit of aluminum will appear upon its surface. This process does not really require the battery, except to expedite it. Prof. A. K. Eaton of New York states, that unless the galvanic action be weak, zinc also is precipitated, which is liable to be mistaken for aluminum. Copper has by the same process been deposited upon aluminum plates, in order that these might be rolled very thin. Unless protected in this way, they do not bear the rolling process, except they be pure metal, though annealed at each passing through. By rolling it is found that its inflexibility is greatly increased, so that it is admirably adapted for the beams of chemical balances, and other instruments for scientific purposes.

ALUMNUS, originally the name of a student, who is supported and educated at the expense of the *alumnat*, the term used to designate an institution, which, especially after the reformation, was endowed for the particular purpose of extending hospitality and education to those youths who could not afford to pay for their living and their tuition. Maurice of Saxony, for instance, endowed three such institutions in Pforte, Meissen, and Grimma, which are to this day in active operation. A somewhat rigid and strict, though not gloomy and monastic discipline, is maintained in the alumnat. The alumni have to adhere to the rules of the establishment and to perform various services for the school and the church, such as singing in the choir and the like, while the *extraneæ*, the name given to students who pay for their board and tuition, are not bound to perform such services.—In ordinary parlance, every graduate of a university is now-a-days an alumnus, and the nourishment implied in the etymology of the word refers to the intellectual benefits conferred by the *alma mater*, and not to the daily bread and meat guaranteed to the poor scholar, which was its primary signification. Thus the graduates of Columbia college in the city of New York, have formed themselves into a society of the alumni of Columbia college, which meets once a year for the purpose of social intercourse and conferring upon the condition of their alma mater, and the same is the case in other American colleges.—In jurisprudence, the term alumnat is the generic expression for the general responsibilities attached in the eyes of the law to the relationship of the foster-father (*nutritor*) toward the child whom he has undertaken to support and educate.

ALUNNO, NICOLÒ, a painter of Foligno, who flourished in the latter part of the 15th century. Few of his works remain. His forte

was expression, his productions having a freshness and reality uncommon at that day.

ALUTA, or ALT, a rapid river of Transylvania, in length 270 miles, which flows from the west Carpathian mountains, across Wallachia and into the Danube at Nicopolis.

ALVA, FERNANDO ALVAREZ DE TOLEDO, duke of, one of the most prominent characters of Spanish history, born 1508, died Dec. 12, 1582. Selected by Philip II. as the instrument of his vengeance against the rebellious Netherlands in 1567, the duke, at the time of his appointment as governor-general of the Low Countries, was about 60 years of age. His fame as one of the greatest generals of Europe, he had acquired by a life spent in camps and in battles, where he displayed not only valor, but a remarkable prudence. Like Fabius, he had conquered much by delay, and was utterly indifferent to the complaints of his own troops, if he did not see fit to risk an action. He was descended from a family which boasted its extraction from Byzantine emperors, one of whom, a Palæologus, conquered Toledo, and transmitted its appellation as a family name. From his earliest years he was trained to arms, and imbibed a hatred of infidels, which was afterward naturally transferred to those at enmity with the church of Rome. At 16 years of age he fought at Fontarabia, and by his desperate courage and his example of military discipline to his troops, greatly contributed to the success of the day. In 1530, he accompanied the emperor Charles V. in his campaign against the Turks. At this period of his youth, by his valiant enthusiasm he seemed like one of the romantic heroes of chivalry. On one occasion he rode as fast as his steed could bear him from Hungary to Spain and back again, merely for a hurried visit to his young bride. In 1535 he took part in Charles's expedition to Tunis. In 1546-'7, he was generalissimo in the war against the Smalcaldian league, but he won his greatest honors at the battle of Mülberg, totally routing the Protestant forces. In 1554, he went with Philip II. to England, and not long afterward was generalissimo of the army in Italy engaged in a war with the pope; and although he revered him as the successor of St. Peter, he was greatly displeased with Philip for obliging him to make peace with the pontiff, whose capital he had seized. To patience and cunning, he united ferocity and a thirst for blood scarcely human; he hardly knew the meaning of pity, while frequently alluding to his clemency in his letters to Philip. The personal appearance of this extraordinary man may well merit description. He was tall, thin, erect, with a small head, dark sparkling eyes, cavernous cheeks, and a stern expression, rendered more striking by a long, thin, waving, and silvered beard. In manners he was cold and haughty, addressing every one as inferior by the second person plural, and was even more inaccessible than his royal master. The

spoliation of the churches in the Netherlands by the Iconoclasts, had enraged Philip more than any of the other troubles in his Flemish provinces; and their armed invasion having been determined on, 10,000 picked veterans, the first men who ever carried muskets, were selected from Lombardy, Sardinia, Sicily, and Naples, and placed under the command of the duke of Alva. Refused a passage through the French dominions, the force embarked at Carthagena, May 10, 1567, and landed at Genoa. The whole army was under the most perfect discipline, and attached to it was a force of 2,000 prostitutes, enrolled and distributed, doubtless to prevent the troops from any outrages in lands through which lay their march. In three divisions they made their way over Mt. Cenis, and through Savoy, Burgundy, and Lorraine, and without the least opposition entered the territory of the Netherlands. Great was the alarm in the disaffected provinces, when it was learned that Alva was on his march; his character had preceded him, and the Netherlanders had little hope of mercy from the remorseless soldier. The prudent William of Orange, too well aware of the fate which awaited him in case he should fall into the hands of the Spanish general, was not to be deceived by any show of clemency, and had retired into Germany. Of such importance was he considered, that the famous Cardinal Granvelle asked, when some other personages of distinction were seized, in allusion to William's taciturnity, if Alva had secured the silent one. On being answered in the negative, he remarked that the duke's labor was lost.—Arriving at Tirlémont, Count Egmont, one of the most brilliant leaders in the revolt, came forth to meet the duke, in spite of the warnings he had received to flee for his own safety. Alva dissembled as well as he could, and the count, with other associates, was lulled into a feeling of false security. The duke's interviews with the duchess of Parma, then regent of the Netherlands, were brief and formal; but in spite of courtly etiquette, neither could well conceal the dislike of the other. Margaret, enraged at being superseded, soon took her departure, and Alva was left alone to fulfil his mission. Gloom pervaded all ranks. With the arrival of the Spaniards, the day of doom for all the past offences of the Netherlands seemed to have dawned. All who could depart crossed the frontier; the merchants deserted the great marts, and all the chief cities became as silent as if stricken with the plague. Establishing his head-quarters at Brussels, Alva at once proceeded in his work of vengeance. The "council of troubles" was set up, to inquire into and punish all past offences; and so merciless were its labors, that it was styled by the populace the Council of Blood. Count Egmont, and Count Horn, the two idols of the people, who had been foremost in asserting the religious liberties of the Netherlands, but who were guilty of no treason, were soon entrapped,

arrested, underwent the mockery of a trial, were condemned, and beheaded in the great square of Brussels. The execution of other popular leaders immediately followed; burnings at the stake and decapitation thenceforth were decreed by wholesale, and during the whole period of Alva's 6 years' administration in the Netherlands, blood flowed like water. In Antwerp, Alva built the famous citadel which still stands a monument to him, and to the military genius of his engineer, Pacheco, built not to protect, but to overawe the citizens. Throughout the length and breadth of the land, his name, and those of his terrible subordinates in the Blood Council, Hessels and Vargas, came to be feared and hated. The least suspicion of any person, however innocent, especially if he was rich, drew down the vengeance of the council, for Alva had promised before he left Spain to enrich the treasury of Philip, by a golden river a yard deep, drawn from the confiscated wealth of heretics; 500,000 ducats per annum he even named as the sum. Before the death of Egmont and Horn, he summoned the prince of Orange, his brother Louis of Nassau, the counts Van den Berg, Hoogstraaten, Culemburg, and Baron Montigny, to appear before the Blood Council, under pain of perpetual banishment, with the confiscation of all their estates. The summons was not obeyed, as they well knew compliance would lead only to summary execution. With Montigny the bidding was a farce, for he was a prisoner in Spain. Not long afterward, it was proclaimed that he had died a natural death after a long illness,—a fact implicitly believed and stated by many historians, until within a few years past, when the opening of the archives of Simancas disclosed the truth that he was secretly strangled by the order of Philip II.—Count Louis of Nassau having invaded Friesland, Alva took measures to oppose him vigorously. At first the count met with some success, and at the battle of Heiliger Lee, defeated the Spaniards under the duke of Aramburg, who was killed. Alva was roused to fury at the news, and to expiate the loss of the duke, decapitated 18 nobles, beside hastening the execution of Egmont and Horn, and then left Brussels to meet the count in the field. An attempt to destroy the dykes and inundate the country, was frustrated by the arrival of Alva's forces, and at the battle of Jemmingen he utterly routed Louis and destroyed his army. The hopes of the prince of Orange were now dark indeed; his armies defeated and broken up, his resources impoverished, and his eldest son, the Count de Buren, a prisoner in Brussels, having been seized by Alva. Still he persevered, and mustering another army, sought in vain to bring Alva to an engagement. Twenty-nine times did the prince change his encampment, and as often did the Spanish forces hover in his rear. The duke's skill in the campaign of 1568 was a masterpiece of tactics; he had nothing to gain, the prince every

thing to hope for by a battle. Alva knew the slender resources of the prince, that he could not long keep his troops unemployed, and he resolved to wear him out by delays. To the impatience of his own troops he did not give a thought, intent on his plan of creating discontent in the enemy, who, unpaid, and disappointed in their hopes of plunder, would disperse with the winter. In a thousand ways did Alva contrive to defeat the prince's plans, to harass him and parry his strokes, and after a barren campaign of little more than a month's duration, to behold his ill-paid hirelings abandon their leader. The country people, too, of Brabant, the scene of this masterly inactivity, refused the prince supplies; and Alva had caused the irons to be taken out of every mill, so that not a bushel of corn could be ground in the province. Frustrated in his hopes of a battle, the prince of Orange was further dejected by the supineness of the country. Not a single city opened its gates to him. Dejected, he was forced to quit the Netherlands, and disband his army at Strasburg, while Alva, triumphant, erected a colossal bronze statue of himself in the citadel of Antwerp, and ordered a series of magnificent fêtes to be celebrated at Brussels. He was soon engaged in a quarrel with Elizabeth of England, who had seized in her ports \$800,000 of Spanish funds. Alva retaliated by ordering the arrest of every Englishman in the Netherlands, and the seizure of all their property. The English queen was not less backward in a rigorous edict against Netherlanders in her dominions; and between the two angry spirits, Flemish prosperity was well-nigh annihilated. Meanwhile, the hideous orders of the Blood Council had no cessation; scores of arrests were followed by scores of murders; the inquisition did its work without a moment's pause; the cord, the axe, the stake, the rack, the dungeon, knew no rest. Pope Pius V. wrote to the duke with his own hand in commendation of his zeal, and sent him a jewelled hat and sword.—But the duke was utterly disappointed in his hopes of forcing a golden stream to flow into the king's coffers; with all his abilities as a soldier, he was a wretched financier; and so far from supporting his army on the confiscations of the people, and supplying Philip with gold beside, as he boasted he would, during the six years of his rule, twenty-five millions of money were sent to him from Spain, yet he left the Netherlands without a dollar in the treasury. One of his most odious schemes of taxation, was the imposition of the "tenth penny"—as absurd a measure as it was tyrannical. Beside this, there were two others: 1. A tax of the hundredth penny, or one per cent., on all property, real and personal, to be paid instantly and collected once. 2. A tax of the twentieth penny, or 5 per cent., on every transfer of real estate; this was perpetual. The tax of the tenth penny, or 10 per cent., was assessed upon every article of merchandise or personal property, to be paid as often as it

should be sold. No sooner was this monstrous imposition declared, than every one in the land excepting the duke himself, perceived how utterly abortive and ridiculous a scheme it would prove. He with impenetrable obstinacy believed that he had stumbled on a "Peruvian mine" of wealth, while even Viglius, president of the Blood Council, endeavored in vain to convince him that the tax could never be collected, and that with the understanding that 10 per cent. was to be paid on every article which in the ordinary course of trade might be sold ten times in a day, the whole traffic of the Netherlands would be utterly given up, and in short, that nothing could be sold at all. The duke persisted, the towns rebelled, examples by dozens were made of refractory citizens to no purpose. The king was petitioned, and finally, after all the severity of Alva, a temporary compromise was effected, by which the towns were to pay \$2,000,000 yearly, for the two following years, that is, until the month of August, 1571. By this time, 1569, Alva had grown weary of his situation, and desired to be recalled. He was disappointed in the work he had effected; he beheld himself the object of universal hatred from his severities, yet he wrote to the king that all he had done, had been "accomplished without violence."—Alva was not recalled, however, and for several years affairs were conducted as usual. Impoverished as was the prince of Orange, his fortitude endured, and he cheerfully suffered the greatest privations for his cause. The people, too, crushed as they were, contributed what they could in his aid; and Alva's ferocity was wrought to the highest pitch, on learning that they gave secretly to the prince, when they would not pay the tenth penny tax. At length universal revolt against the odious measure was manifested, and the desperate expedient resorted to of abandoning all trade, preferring rather to perish by starvation. The shops were all closed, "the brewers refused to brew, the bakers to bake, the tapsters to tap." To strike terror into such refractory citizens, Alva resolved to hang 18 of the tradesmen of Brussels at the doors of their own shops, without delay and without trial. This summary work was prevented, however, by the news of the capture of Brill, by the "Water Beggars," adherents of the prince of Orange, and Alva's fury was led into another direction by his efforts to relieve the place. The revolution and capture of Flushing soon followed, and the first half of the year 1572 was distinguished by a series of brilliant triumphs for the patriot party. The nation shook off its fetters in one sudden bound of enthusiasm, and Oudewater, Dort, Leyden, Gorcum, Loewenstein, Gouda, Medenblik, Horn, Alkmaar, Edam, Monnikendam, Purmerend, &c., all ranged themselves under the standard of the prince of Orange. His triumph, however, was short, for the news of the massacre of St. Bartholomew, in August, fell with frightful effect upon his followers, utterly par-

alyzing their hopes and efforts; his armies melted away, the towns again forswore their allegiance to him, and almost in solitude he retired to Holland, the only province which preserved its fidelity. He had but a few days before considered Charles IX. of France as his ally, and was expecting an army of assistance led by Admiral Coligny, when he heard the news of his murder in the Huguenot butchery.—On many of the offending cities, even those which returned to "obedience," Spanish vengeance fell with terrible retribution; and it would prove but a sickening tale to narrate the scenes of lust and murder, attending the capture and sack of such towns as Mons, Mechlin, Zutphen, Naarden, Haarlem, &c. Successive sieges and slaughters only seemed, however, to nerve the Netherlands to more desperate resistance, and hemmed in as they were, they fought no longer like men, but fiends. At length, at the siege of Alkmaar, after investing the city for 7 weeks, the Spaniards were obliged to retreat; and from that moment the tide of Flemish misfortune began to ebb, and soon a brighter day dawned on the liberties of the Netherlands. Finally, disgusted with the hopelessness of his cause, and furious at the intrigues of those in power about him, Alva obtained his recall, received, Nov. 17, 1578, his successor, Don Luis de Requesens y Cufiiga, and on the 18th of the next month left the provinces forever. His parting advice was, that every city in the Netherlands should be burned to the ground, except a few to be permanently garrisoned; and he boasted that during his 6 years' rule, he had caused 18,600 persons to be executed. But to this immense number must be added those who perished by siege, battle, and merciless slaughter; and the list defies all computation. Every conceivable mode of death and torture was wreaked upon the victims of his royal master's vengeance. Men were racked, shot, hung by the neck, and head downward, broken on the wheel, slowly roasted, buried alive, crimped to death with red-hot pincers, starved, and flayed alive. At the sack of Haarlem, 800 citizens, tied two and two, and back to back, were thrown into the lake; and at Zutphen, 500 more, in the same manner, were drowned like dogs in the river Yssel. Women were publicly violated in tens of thousands, and unborn infants ripped from the wombs of their mothers. Yet Alva was always complaining to Philip II. of the unjust hatred shown toward him, and the "ingratitude" of the Netherlands in return for his "clemency."—He was well received by Philip II., but some time afterward fell into disgrace with the monarch, from espousing the cause of his own son, who had debauched a maid of honor. He was imprisoned and banished until required for the conquest of Portugal. This he accomplished, and died at the age of 74 years.

ALVA Y ASTORGA, PEDRO DE, a Spanish theologian, born toward the end of the 16th century, died in the Netherlands in 1667. In

Peru he joined the order of the Franciscan monks. He travelled much over Europe, and in 1668 he published at Brussels, with the view of proving the Immaculate Conception, a curious work, entitled *Funiculi nodi indissolubilis de conceptum et conceptu contra, hoc est, &c.*

ALVAR, or ALWAR, a principality in the centre of upper Hindostan, between 27° and 28° of N. lat.—ALVAR, its capital, is 900 miles N. W. from Calcutta, and 85 miles S. S. W. from Delhi. It lies at the base of a steep hill, and is strongly fortified by surrounding walls and forts. The natives of this town and vicinity are singularly savage, and notorious for their depredations upon the surrounding territories. They were formerly under the government of the rajah of Jeypoor, but are now ruled by the rajah of Macherry, who is himself under the protection of the British government. His milder and better regulated administration has somewhat mitigated the violent and brutal character of the inhabitants, and the principality is now represented as a flourishing native state.

ALVARADO, a river and town in Mexico, in the state of Vera Cruz. The town is situated on the left bank of the river, and about 8 miles from its mouth. It is badly built, consisting mostly of cane cottages roofed with palm-leaves, and contains only about 2,000 inhabitants, but carries on a considerable commerce with Vera Cruz. The country south of the river has numerous plantations of cacao, and produces much rice, both of which articles are sent to the other states of Mexico. There is a dock-yard at Alvarado, and a port capable of admitting vessels not exceeding 18 feet draught. Sometimes 20 vessels or more are found in the harbor. The unhealthy climate militates against the prosperity of the town. Alvarado has acquired a certain degree of historical notoriety from having been captured by Lieutenant Charles Hunter in the late war between Mexico and the United States. This audacious exploit Lieutenant Hunter performed, with a small force, on his own responsibility, without orders from the commanding officer of the gulf squadron, for which he was afterward court-martialled and reprimanded.

ALVARADO, PEDRO DE, one of the conquerors of Spanish America, born at Badajoz toward the end of the 15th century, died in 1541. In 1518, he sailed with his 4 brothers for Cuba, whence he accompanied Grijalva in his exploring expedition along the coast of the American continent. Grijalva was so delighted with the aspect of the country that he called it New Spain, and sent Alvarado back to Cuba to report to Governor Velasquez what they had seen and what they had heard, for the first time, about the immense empire of Montezuma. In February, 1519, he accompanied Cortes in his expedition, and took an active and remarkable part in all the incidents of the conquest of Mexico. Cortes, while engaged in the battle against Narvaez, left the city of Mex-

ico under charge of Alvarado, but by his cruelty and rapacity, the latter caused an insurrection, and narrowly escaped with his life. In the famous retreat of the night of July 1, 1520 (*la noche triste*), Alvarado again distinguished himself by his gallant exploits, and to commemorate his bravery, an enormous ditch over which he leaped to escape from the hands of the enemy, is called to this day "el Salto de Alvarado." On his return to Spain, he was received with great éclat by Charles V., and appointed governor of Guatemala. He married a daughter of the illustrious family of the duke of Albuquerque, and returned to Spain accompanied by a host of friends and adventurers. Subsequently he had violent contests with Pizarro, but he preserved the confidence of the emperor, who appointed him governor of Honduras as well as of Guatemala. He made many discoveries on the California coast, and continued to colonize and explore the American continent until 1541, when he was killed in an encounter with the Indians.

ALVAREZ, BERNARDO DE, a Spanish adventurer, born at Seville in 1514, died in 1584. At the age of 14, he joined the Mexican army, from which he was expelled for bad conduct and transported to the Philippines. He escaped from prison and found his way to Peru, where he amassed a considerable fortune, which he used for the establishment of hospitals at Mexico and other cities of New Spain. These hospitals were supported by the charitable society of St. Hippolytus, which he founded and endowed, and which received its charter as a religious order, from Pope Innocent XII.

ALVAREZ, FRANCISCO, a Portuguese traveller and divine, born at Coimbra, died about 1540. He was chaplain of King Emanuel, and had the reputation of an accomplished theologian, but his claims upon the grateful remembrance of posterity rest principally upon the remarkable part he took in the exploration of Abyssinia, and the additions which he made to the existing knowledge of that country. In 1515, in the capacity of councillor and chaplain, he accompanied King Emanuel's ambassador, Duarte Galvao, to the court of David the emperor of Abyssinia, but Galvao dying on the way, Rodrigo de Lima was appointed ambassador, and, under his charge, the embassy landed at Mesoah in Abyssinia, April 6, 1520. Their journey through the interior of Abyssinia was beset with many difficulties and dangers, and their embarrassment was increased by the death of a Portuguese priest of the name of Matéo, who had been originally dispatched by the Abyssinian empress-regent Helen, as a messenger to implore King Emanuel's assistance against the Turks, and who had rendered many useful services to the embassy, as guide and interpreter. But if the Portuguese had to encounter many obstacles, they enjoyed also the advantage of becoming acquainted with many of the remarkable features of Abyssinia. Alvarez was especially overcome with delight by the archi-

tectural grandeur of the superb cathedrals of Lalibela, in the land of Lasta—the same cathedrals, which, according to Ethiopian traditions, have been in existence since the days of Abraham, having been carved out of the rocks by white men in the remarkable short space of 24 years. At last, Oct. 20, 1520, the embassy made their solemn entry into the capital of the emperor David, and were received with every demonstration of respect and distinction. The European adventurers at the court of David threw many impediments in the way of the mission; the ambassador himself, Rodrigo de Lima, was very unpopular. Alvarez, alone, made himself acceptable to all parties, especially to the Abyssinian priesthood, who respected his religious character, and to the Abyssinian emperor, who conceived such an admiration for him, that he appointed him ambassador to the Vatican—a mission, however, which Alvarez could only discharge many years afterward, in 1538, when he actually remitted his credentials as Abyssinian ambassador to Pope Clement VII. The embassy left the Abyssinian court at the beginning of 1521, with a view of returning to Portugal, but a mutiny which broke out among the company, and which called for the armed interference of the Abyssinians, forced them to return to Abyssinia, and Alvarez was compelled to stay there about 6 years, until 1526, when he returned to Lisbon, where he was received with great distinction by Joao III., King Emanuel having died in 1521. The king prompted him to publish the results of his observations during his 6 years' stay in Abyssinia, and the publication of a work that shed so much new light upon a country so little known as Abyssinia created a great sensation all over Europe. This work was translated into French, Latin, and other languages, and abridged also by Ramusius.

ALVAREZ, JUAN, a Portuguese writer, born at Torres-novas during the 15th, died at the beginning of the 16th century. He accompanied Don Fernando, who has been called the holy infant, to Africa, and shared his captivity. After the death of this martyr he returned to Europe, when he received the appointment of abbot commendataire of the celebrated abbey of Paço da Souza, which belongs to the Benedictine monks, and which is said to have been founded by the famous Egaz Moniz. He effected many useful reforms in the abbey, and acquired also some distinction by his book on the holy infant, the unfortunate son of Joao I.

ALVAREZ, JUAN, leader of the Mexican revolution, which, in 1855, drove Santa Anna and his despotic system from power, and inaugurated more liberal institutions. He was born in 1790, and exercised from his earliest days, an extraordinary influence over the people of southern Mexico. Of republican habits, tastes, and principle, instinct with energy and full of courage, he became the idol of the mountaineers in his immediate neighborhood, the department of Guerrero, and the terror of the

different administrations which successively swayed the destinies of Mexico, and whose repeated attempts to subdue his savage sense of independence failed against the power which this feeling, shared as it was by the Indian tribes of the mountain districts, had given him over the hearts of those tribes. When the discontent engendered by Santa Anna's administration assumed more critical proportions toward the end of 1853, and when all over the land, in Mazatlan, Chihuahua, Durango, Tamaulipas, and in many other towns and departments, the popular storm began to gather, Alvarez had little difficulty in kindling in the breast of his Guerrero mountaineers the flames of insurrection. It was chiefly due to his influence, that the rebellion which, on the night of Jan. 22, 1854, broke out at Acapulco, acquired the magnitude of a formidable revolution. The terror with which his name filled the camp of the enemy, was equal to the enthusiasm which it created in the bosom of his friends. Santa Anna denounced him as a bloodthirsty hyena, and as the panther of the south, and made tremendous efforts to undermine his influence, but all to no avail. Alvarez had the whole south of Mexico on his side, while in the north and east the revolution soon spread over the departments of Michoacan, Tamaulipas, San-Luis Potosi, Nuevo Leon, Puebla; it was joined by Haro y Tamariz, Ignacio Comonfort, Santos Degollado, Ghilardi, and other eminent men. Some inconsiderable additions to the insurgent forces were also made by adventurers from Texas. The first decisive engagement which took place at Saltillo in the province of Coahuila, July 22 and 23, 1855, ended most disastrously for Santa Anna. Monterey, the capital of Nuevo Leon, was in the possession of the revolutionists, while Matamoros was seriously threatened. The dictator's power was at an end. In the decree promulgated by Alvarez at the dawn of the revolution, March 1, 1854, at Ayutla in the district of Ometepeo in the department of Guerrero, and which became noted as the plan of Ayutla, Santa Anna's deposition was officially announced, and republican institutions were proposed to the people, with Alvarez, Nicholas Bravo, and Tomas Moreno, as commanders of the army. It was at the instigation of Alvarez, that the American ambassador, Gadsden, refused to make any further payment to Santa Anna, who, on his flight, Aug. 8, 1855, was extremely desirous of adding the balance of \$3,000,000, due by the United States to Mexico, to his other spoils. After Santa Anna's downfall, Gen. Carrera was intrusted for 6 months with the charge of the government, which, however, he relinquished in Sept., in favor of Alvarez, whose nomination as president of Mexico was ratified by the assembly of Cuernavaca, which, for that purpose, he had convoked himself on Oct. 4, 1855. He immediately proceeded to organize his cabinet, giving to Comonfort the war department, to Melchior Ocampo the foreign

office, and to Guillermo Prieto the finances. Alvarez, whose head-quarters during the war had been at Tixtla, about 80 miles from Acapulco, pitched up his camp now in Cuernavaca, to the utter amazement of the foreign ambassadors, who had never before been compelled to resort to such a singular place for the transaction of diplomatic business. But the veteran guerilla leader of Guerrero could not be broken to the ways and fashions of polished society. He was surrounded by this wild band of pintos or Indian partisans, and trampled upon all laws of decorum, by walking about with his old linen mountain costume and a decayed straw hat. However, as the place was too far removed from the capital for the prompt dispatch of business, he at length had to make up his mind to leave his darling Cuernavaca, and on Nov. 18, 1855, he made his entry into Mexico, escorted by his body-guard of Indians, whose haggard, barbarian, eccentric appearance, seemed to fill the inhabitants of that metropolis with mingled feelings of merriment and consternation. But they were soon to be relieved from his uncongenial presence. The dissensions in his cabinet between the puroos, or democratic members, and the more conservative ministers whose cause was represented by Comonfort, seemed rather to increase than to abate. At the same time mortal offence had been given to the army and clergy by the abolition, by decree of Nov. 24, of their ancient privileges, and on Dec. 6, Alvarez found himself placed in the most awkward position by the breaking up of his cabinet, which took place on that day. The old warrior, who was only in his element among his guerillas in Guerrero, felt himself more and more out of place in the midst of the turmoil of affairs, the plotting of parties, and the cabals of intriguers. He tendered his resignation, Dec. 8, substituting in his place his former minister Comonfort, and after procuring \$200,000 from the national exchequer, and what arms and munitions he could get hold of, he returned with his beloved Indians to his mountains in southern Mexico, where he continues to be the ruling spirit of the country. During his exploits, Alvarez was accompanied by his 2 sons, Diego, who has the reputation of being a great diplomatist, and is commonly spoken of as such; and Encarnacion, who shines on the battle-field, and has received the surname of the warrior.

ALVAREZ, MARTIN, count of Colomera, a Spanish general, born in Andalusia in 1714, died in 1819. In 1788 he took an active part in the Italian campaign, and in 1779 he was the commander of the famous camp of St. Roch, and of the siege of Gibraltar. In 1794 he was appointed to the command of the army of Navarre and Guipuzcoa, but as he could not succeed in preventing the progress of the French army, the Prince of Castel-Franco was appointed to take his place, and he retired from active service. From 1808 to 1814, centenarian as he was, he served under Joseph Bonaparte, as councillor of state.

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ALVAREZ DE CASTRO, MARIANO, a Spanish general, born in 1775, died in 1810, distinguished himself in the campaign against Napoleon, especially during the siege of Girona, of which town he was the commander. He defended the town with great spirit, but pestilence, added to all the horrors of war, decimated his army. He was himself prostrated by the disease, and rather than capitulate he tendered his resignation. But after the evacuation of the place he was thrown into the prison of Figueras, where he died of grief.

ALVAREZ DE LUNA, born in 1888, executed in 1458, treasurer and favorite of John II. king of Castile, celebrated for the ascendancy which he gained over that prince. He was a natural son of Alvaro de Luna, lord of Canete, in Aragon, and of a common prostitute. When a boy he was called Peter, but Pope Benedict XIII., who was charmed with his wit, changed Peter to Alvarez. He was introduced to court in 1408, and spent there 45 years, and during 30 of them maintained such an ascendancy over the king, that nothing could be done without his concurrence; nay, it is related by Mariana, that the king could not change an officer or servant, or even his clothes or diet, without the approbation of Alvarez. The indignant nobles rose against him, and he was banished for a year and a half, but such was the king's partiality that he was recalled and loaded with greater honors. Acts of tyranny and extortion, however, accomplished his ruin; he was artfully seized by his enemies, and though he endeavored to soften the king to mercy, he was tried, condemned, and beheaded in the market-place of Valladolid. He met his fate with the greatest intrepidity.

ALVAREZ DE ORIENTE, FERNAO D', a Portuguese poet, died toward the close of the 16th century. His *Lusitania Transformatada*, written partly in prose, partly in verse, published at Lisbon, 1607, compares favorably even with some passages of Camoens' great national epic. A second edition of this work published at Lisbon, 1781.

ALVAREZ Y BAENA, JOSE ANTONIO, a Spanish biographer, born at Madrid in the middle of the 18th century, died about 1803. His principal work, *Hijos de Madrid, ilustres en santidad, dignidades, armas, ciencias, y artes*, was published at Madrid, 1789-1791, 4 vols. in 4to.

ALVENSLEBEN, PHILIPP KARL, count of, a Prussian statesman, born at Hanover, Dec. 16, 1745, died at Berlin, Oct. 21, 1809. He sprang from one of the oldest families of Prussia, who date their eminence back to the times of Charlemagne. He was educated together with the future king, Frederick William II., and his brother the prince, Frederick Henry; studied law at Halle, and devoted himself to diplomacy. He represented the Prussian government successively at the courts of Bavaria, France, Holland, and England. In 1791 he was put at the head of foreign affairs. He is the author of a chrono-

logical tableau of the events of the war from the peace of Munster until that of Hubertsburg.

ALVIANO, BARTOLOMMEO, a Venetian general, born toward the middle of the 15th century, died Oct. 7, 1515. In 1508, he distinguished himself in the battle against Emperor Maximilian, and defeated his army which had invaded the Friuli. He followed up his victory by the capture of Trieste. In 1509, during the engagement of the Venetian army with the French army, commanded by Louis XII., he was wounded and fell into the hands of the enemy. Under the treaty of peace concluded, March 14, 1513, at Blois, between France and the republic of Venice, he recovered his liberty. On his return, he continued to take an active part in the repulse of the Spanish army under Gen. Cardonne, who had invaded the Venetian territory. He also contributed materially to assist Francis I., the ally of Venice, in his victory at Marignan over the Swiss army on Sept. 14, 1515. Subsequently, Alviano reconquered some of the towns which the Venetians had lost in previous conflicts, and after having taken Bergamo, he was just on the point of besieging Brescia, when he died. By order of the Venetian government he was buried with pomp.

ALVINCZY, JOSEPH, baron von, an Austrian field-marshal, born in 1735, in Transylvania, died in 1810 at Buda. He distinguished himself during the 7 years' war, at Torgau, at the capture of Schweidnitz, and at the battle of Töplitz. During the peace, he introduced many reforms in the tactics of the Austrian troops. In 1789 he took part, under Field-marshal Landon, in the campaign against the Turks, and, although he did not succeed in reducing Belgrade, the emperor Joseph II. conferred upon him the dignity of lieutenant field-marshal. Subsequently he was sent to Liège to quell the insurrection. Alvinczy was not successful on this occasion, but the confidence in his consummate ability as a tactician remained the same, so much so that he was put at the head of the Austrian army against Napoleon. He obtained some small advantages over the French at the Scalda, at Bassano, at Vicenza, but he lost the two great battles of Arcola and Rivoli, and was recalled and even accused of treachery. But the emperor of Austria, who had been one of Alvinczy's military pupils, did not take any notice of these imputations, and appointed him, in 1798, superior commander of Hungary, where he reorganized the army, and 10 years later, in 1808, he conferred upon him the rank of field-marshal.

ALXINGER, JOHANN BAPTIST VON, a German poet, born at Vienna, Jan. 24, 1755, died May 1, 1797. Though he was a doctor of laws, and held the title of court advocate, he availed himself of his legal station only to arrange disputes, or plead for the poor. Lyrical poetry was his favorite pursuit. His works were published at Vienna, in 1812, in 10 volumes. His principal productions are two chivalresque epics in Wieland's style, "Doolin of Mentz," and

"Blomberis." He was a man of delightful social qualities, and great generosity of disposition.

ALYM-GUÉRAI, the 84th khan of the Crimea, appointed to this office by the Sublime Porte as the successor of Arslan, lived toward the middle of the 18th century. He was a person of considerable ability, but reckless in his expenditure and cruel in his disposition. He exasperated the Tartars by his constant increase of the taxes, and when on occasion of a famine in Constantinople, he called upon them for supplies, an insurrection broke out, in consequence of which Alym-Guérai was eventually recalled in 1768.

ALYPIUS OF ALEXANDRIA, an Egyptian philosopher, a dwarf, who lived in the 4th century, distinguished for the subtlety of his wit. One day he met the philosopher Iamblichus, and asked him whether in his opinion every rich man was not either a rogue himself or the son of a rogue. This question struck Iamblichus as so subtle, that he did not dare give an opinion, but cultivated the acquaintance of Alypius. The teachings of this philosopher were all oral; he did not leave any writings.

ALYPIUS OF ANTIOCH, an architect and engineer, who lived about 850 A. D., under the reign of Julian the Apostate. He was ordered by Julian to rebuild the temple of Jerusalem, but, after having proceeded with the work to some extent, he abandoned it upon the ground that the earth underneath was burning. Eight years afterward he was accused of sorcery, banished, and his property confiscated.

ALYPIUS OF GREECE, a Greek writer and musician, who lived, according to Cassiodorus, anterior to the era of Ptolemy, and even of Euclid. According to De la Borda, he lived in the second half of the 4th century. He has written a very unique work, the musical notes of the Greek *Ελογιον μουσικη* (Introduction to Music), which was published at Leyden in 1616.

ALZATE Y RAMIREZ, JOSÉ ANTONIO, a Mexican astronomer and geographer, who died toward the end of the 16th century. He was the correspondent of the scientific academy of Paris, and published at Mexico the *Gaceta de Literatura*, through which he created a love for science among the Mexican youth. He made many astronomical observations and left various writings connected with geography and natural history. He is also the author of a curious essay, *Sur la limite des neiges perpétuelles au volcan Popocatepetl*.

AMACURA, a South American river emptying into the southern mouth of the Orinoco, and forming, as it approaches that stream, a part of the boundary between British and Colombian Guiana.

AMADEI, CARLO ANTONIO, a doctor of medicine and botanist, born at Bologna about the middle of the 17th century, died in 1720. By the inspection of a single grain he was able to name the plant to which it belonged. He discovered 2 rare species growing in Italy, which had never yet been classified, and one of which

is a native of the equatorial regions. One of them caused the creation of a new order named *Aldrovanda*, in honor of Amadeus' countryman Aldrovando.

AMADEUS. A name very common in the ruling family of Savoy, and first adopted by the eldest son of Count Humbert, in the beginning of the 11th century. The most noteworthy rulers of this name are: I. The 5th count of Savoy of that name, born 1285, died at Avignon in 1323. He was the first count of Savoy who achieved a European reputation, and, though his territory was small, obtained the surname of Great. He largely increased his paternal dominions by marriage, purchase, and donations. His most brilliant exploit was the repulse of the Turks from Rhodes, then in the possession of the knights of Malta. A Maltese cross, with the letters F. E. R. T., became henceforth the arms of Amadeus and his successors. The explanation of the motto is *Fortitudo ejus Rhodum tenuit*. His daughter was married to Andronicus, the emperor of Constantinople. In order to induce Pope John XXII. to preach a crusade in favor of his son-in-law, he undertook a journey to Avignon, where he died. II. The 8th Count of Savoy of that name, and for some time pope or anti-pope, succeeded his father Amadeus VII. in 1391. He purchased the country of Genevois for 45,000 florins, and thus the house of Savoy became so powerful that the emperor Sigismund, in 1416, erected Savoy into a duchy. For services rendered, John Palaeologus, duke of Montferrat, agreed to hold the Marquisate of Montferrat as a fief of the house of Savoy. By marriage and donation he made yet further acquisitions. He then abandoned his duchy to his son and retired to the monastery of Ripaille. Although desirous of having a reputation for austerity, he lived so luxuriously there that *faire Ripaille* became a saying in the French language, signifying to make good cheer. Although he had never received holy orders, he was elected pope and was confirmed by the council. He was crowned at Basel by the cardinal of Arles, under the title of Felix V. The papal dignity was contested by Eugenius, who was supported by France, England, Italy, Spain, and Hungary. Eugenius died, and the cardinals at Rome elected Thomas de Sarzan (Nicholas V). Amadeus resigned the papal crown in his favor, stipulating, however, that he should be perpetual apostolical legate in his late temporal dominions, that he should continue to wear the pontifical dress except in a few particulars, that he need not go to Rome to attend any general council, and that the pope should rise to receive him, and permit him to kiss his cheek instead of his foot.

AMADIS, is a name much used in the romances of chivalry which come down to us from the middle ages. We distinguish four of them. I. AMADIS OF GAULA, a natural son of Perion of France and Elisener, daughter of the king of Brittany. II. AMADIS OF GREECE, grandson of the emperor of Trebizond. III.

AMADIS, son of the Colchian king Ageilaus and Diana. IV. AMADIS OF TREBIZOND, a son of Roger the well-beloved of Greece. All these were creatures of the fiction writer's brain. The romance of Amadis of Gaula is by far the most famous. Vaso Lobeira first wrote it in Portuguese prose in the 14th century. It was translated into Spanish by Ordonez de Montalvo about 1460. The Frenchman D'Herberay translated it into French (1555) and published it with the mistranslated title *Amadis des Gaules*, so as to make it appear to be of French origin. The Gaula of Amadis is Wales, and the scenes and characters are British. The story is founded upon the patriotic struggles of the Welsh against the Angles and Saxons, previous to the supposed time of Prince Arthur. The Romans and Saxons are united against the ancient Britons, and the Saxons are much abused by the Celtic romancer. The romance was never much esteemed in Italy.

AMADIYAH, a district and town of Koor-distan. The town, described by Layard as a heap of ruins, is situated on a branch of the Tigris, about 65 miles N. N. W. from Mosul. It has a strong fort, considered the key to Koor-distan. The town is of great antiquity.

AMAGER, a small island, lying to the southward of Copenhagen, across the harbor; one of the suburbs of the city is built upon it. Its area is about twenty square miles. It furnishes Copenhagen with vegetables and products of the dairy.

AMAIN, a seafaring term, importing to lower something at once. Thus, to strike amain, is to lower the topsail; to wave amain, is to wave a drawn sword as a signal that the enemy should lower or strike their topsails.

AMAKOOSA, an island belonging to the Japanese empire, lying west of Kiusiu.

AMALAIRE SYMPHORIUS, a learned ecclesiastic of the 8th century. He was director of the Palace school under Louis the Debonair. He wrote, among other things, a *Regle des chanoines*, which was the chief ceremonial authority in the churches of France for two centuries; but in the 11th century it was denounced by Pierre Damien and discountenanced by Pope Nicholas II. and fell into disuse.

AMALARIC, the son of Alaric II., and last Visigoth king of Spain, was born A. D. 501, and killed in 531. He was only 5 years old at his father's death, and his bastard brother would have supplanted him, had not his grandfather Theodoric, king of the Ostrogoths, seized the throne and preserved it for his grandson until he reached manhood. He married Clotilda, daughter of Clovis, king of the Franks, in 527, and having treated her with great cruelty to induce her to embrace Arianism, her brother Chilbert marched against him, and defeated him in battle. He was killed in the flight.

AMALASONTA, daughter of Theodoric the Great, king of the Ostrogoths, was born A. D. 498, and died in 535. Her fine intellect and

extensive learning decided Theodorice to make her the regent of Italy, during the minority of her son Athalaric, to whom he had bequeathed that kingdom. In this position she showed great administrative talent, but her ceaseless efforts to educate her son were thwarted by the Gothic nobles, and his debaucheries destroyed him at the age of 16. She still endeavored to retain power, but through the influence of Justinian was imprisoned by Theodat, her cousin and fellow-regent, and strangled.

AMALEKITES (all that lick up, or strike, or use ill). The first information we have of this tribe is, that they attacked the hindmost ranks of the Israelites, as they were journeying through the wilderness, and slew the weary. From this circumstance there grew up the most inveterate hatred between the Hebrews and the Amalekites, which, after repeated conflicts, beginning with the battle in which Hur and Aaron stayed up the hands of Moses on the mountain until the going down of the sun, ended in the utter destruction of the Amalekites, during the reign of Hezekiah. Some difficulty has been experienced in determining both the genealogy and geography of the Amalekites—from the fact of apparently contradictory mention of them in the Scriptures. They are spoken of as a very powerful people in the days of Moses, and yet they are said to have been descended from Esau. But from Esau to the first Amalekitish war under Moses could have been only three or four generations. They are also spoken of (Numbers, xxiv. 20) as "the first of nations" in the speech of Balaam. Calmet concludes that there were three different tribes designated by this name. I. The ancient Amalekites, of whom Balaam speaks, and who lived on the Jordan. II. The Amalekites with whom Joshua fought under Moses, and who dwelt south of Palestine, and east of Egypt, and to whom David refers (1 Sam. xxvii.), who "were of old the inhabitants of the land, as thou goest to Shur, even unto the land of Egypt." It was with these the lasting feud of the Jews existed. III. The descendants of Esau. This mainly reconciles the geographical and ethnological difficulties of the case. The Arabians say the Amalekites were descended from Ham. If we understand this to be the genealogy of the 2d tribe mentioned above, we are able to account for their prowess in the days of Moses, and also for a fact which appears throughout the Scriptural record of this people, that their sympathies were never with the Edomites, but with the Canaanites in their contests with the Israelites.

AMALFI, a decayed city and seaport of Naples, on the Salerno gulf, lat. 40° 38' N., long. 14° 37' 10" E. Population, about 5,000. It attained great distinction as the principal mart in the Levant for all eastern merchandise. Amalfi, then an independent maritime republic, was the first Italian state that traded with Egypt. It is the birth-place of Flavio Gioja, the improver of the mariner's compass.

AMALGAM (Gr. *ama*, together, and *γασμα*, to marry, or according to Dr. Webster from *μαλαγμα*, and this from *μαλασσω*, to soften), an alloy of two or more metals, one of which must be mercury. This metal has a remarkable power of dissolving most of the other metals and forming combinations that may be applied directly to various uses. And, moreover, as the mercury is easily expelled from them by heat, these combinations are used as a means of bringing other metals into a condition of convenient application to many purposes. Thus, gilding is sometimes effected by washing other metals with a solution of gold in mercury, which is an amalgam. The mercury is driven off by heat and the gold remains coating the surface. A process is patented in England for covering iron with zinc, which is based on this principle. A considerable degree of cold is produced in forming some amalgams. Thus, in mixing at a temperature of 65° F. 118 parts of tin and 201 of lead, both in filings, 284 of bismuth in fine powder, and 1,616 of mercury, the temperature falls even to 18°. Many of the amalgams are definite compounds, from which the mercury in excess may be squeezed out; but sometimes the liquid that thus escapes is found to be itself an amalgam, containing a less proportion of the harder metals, seeming to indicate two definite compounds of different proportions. This is observed with the amalgam of mercury with silver, and also with tin. In tinning mirrors, the glass plates are laid upon smooth stone tables covered with the amalgam. The solid portions adhere in a thin film to the glass; and this is a compound of atomic proportions. The liquid, squeezed out by the weight placed upon the glass, proves also to be an amalgam containing but a small proportion of tin. Amalgams are prepared by putting the harder metals, reduced to small size, in mercury, and dissolving them with or without heat, as may be required. When the metals are not easily dissolved, they may be rubbed together or triturated in a mortar, or melted, and the mercury heated and poured into the fused metal. This is the process for preparing an amalgam of 4 parts mercury, 2 zinc, and 1 part tin for the electrical machine. The zinc is first melted, the tin added, and then the hot mercury stirred in. It is to be shaken till cold, then triturated and sifted in a fine sieve. An amalgam of mercury with iron is prepared by rubbing together in a mortar clean iron filings and zinc amalgam, and adding a solution of perchloride of iron. By rubbing and heating this mixture a bright amalgam of iron and mercury is produced. Some amalgams take a crystalline form, thus indicating combination in definite proportions; and there is also a native amalgam of this character—of mercury with silver. This is found in dodecahedral crystals, consisting of 1 atom of silver and 2 of mercury, = 86 per cent of the one and 64 of the other. One part of gold heated with 6 parts of mercury crystallizes on cooling in four-sided prisms. Tin

amalgam made of 8 parts of mercury and 1 of tin forms cubic crystals. Amalgams freed from their excess of mercury are, when freshly made, dry pasty substances, which soon become hard like stone. This property makes some of them convenient for filling cavities of teeth, but the injury the mercury may effect upon the system renders their use highly objectionable.

AMALGAMATION, the process of extracting gold and silver from the gangues in which they occur in nature by combining them with mercury. The ores are crushed and then washed through different machines in which mercury is placed. This seizes upon the little particles of the metals that come in contact with it, and brings them together into one mass, from which the earthy matters are all washed away. Any greasy substance present almost wholly prevents this effect, the grease adhering in a film upon the surface of the mercury, and thus rendering impracticable the close contact necessary for their union. The amalgam is from time to time taken out of the washing machines, squeezed through cloth or dressed deer-skin, the liquid portion replaced and the solid distilled, or simply "burned off" in an open pan, so much of the mercury being saved as may collect in a little water kept in the side of the pan farthest from the fire. The proportion thus saved is much greater than one would imagine. The process adopted in Mexico and South America for amalgamating the sulphuret and chloride of silver, which are poor in metal, is an interesting but somewhat complicated chemical process.

AMALIA, **ANNA**, duchess of Saxe-Weimar, second daughter of Duke Karl of Brunswick Wolfenbüttel, born Oct. 24, 1739, died April 10, 1807. She was married to the duke Ernst of Weimar in 1756. After her husband's death in 1758, she took the reins of government, and wielded them so well, that Saxe-Weimar received no harm from the 7 years' war or the famine of 1773. In 1775 she resigned the administration to her son, and devoted herself to the cultivation of science. For 80 years she lived in the society of Wieland, Goethe, Herder, and Schiller.

AMALIE, **MARIE FREDERIKE AUGUSTE**, a dramatic poetess, the duchess of Saxony, and eldest sister of Frederic August II., born Aug. 10, 1794. After receiving a careful and learned education she travelled in Italy, France, and Spain. In 1810 her marriage with the emperor Napoleon was agitated, but he having given the preference to the archduchess Maria Louisa, she remained unmarried, and employed her hours of leisure in cultivating the arts of poetry and music. She composed in 1829, under the name of Amalie Heiter, a drama entitled "The Coronation Day," and in the next year a second piece entitled "Messu." These poems were of a highly romantic and fantastic character, with their scene in the Orient, and were brought out with great success at the court theatre of Dresden. She wrote several other plays, among which were "Falsehood and Truth," "The

Uncle," "The Marriage Ring," and "The Heir by Primogeniture," all of which were represented with brilliant success before the court and in the cities of Germany. The aim of most of her dramas is to paint the manners of humble life, and to show the superiority of simple but pure minds to the pretensions of aristocratic pride. She is skilful in producing stage effects, and though her comedies rather lack the comic element, and her tragedies are not deeply nor fearfully pathetic, they yet do not fail to please and touch the listener. The duchess is said to have composed also pieces of sacred music and portions of opera.

AMALS, or **AMALI**, the name of the royal family of the Goths. Of this family were all the sovereigns of this nation, until the division into Ostrogoths and Visigoths. After that event the Ostrogothic kings were Amals, until the extinction of the male line in Theodorich the Great. According to the legendary chronology recorded by Jornandes, the Gothic bishop and chronicler, Amal, who gave the name to the family, was the fourth descendant of Gapt, the first Gothic king. Amal is supposed to have signified spotless.

AMALTEO. I. **GIROLAMO**, **GIOVANNI BATTISTA**, and **CORNELIO**, three Latin poets of Italy, in the 16th century. Their works were published at Venice in 1627, and at Amsterdam in 1684. II. **POMPONIO**, a distinguished painter of the Venetian school, was born in 1505, and died in 1588. He was the pupil of Pordenone, whose style he imitated, though in an inferior manner. He excelled in design, which was seldom the case with Venetian painters.

AMALTHÆA, the nurse of the infant Zeus. She is commonly supposed to have been a goat, who, with her two young ones, was translated to the skies, where all three were metamorphosed into stars by the father of the gods.—There is a tradition that Zeus broke off one of the horns of the goat Amalthæa, and presented it to the daughter of Melisseus, king of Orete. This horn was endowed with such miraculous power, that whenever the possessor wished it would instantly become filled with whatever might be desired. The horn of Amalthæa plays an important part in the mythology of Greece, and in later times has been used as the symbol of plenty under the name of "cornucopia."

AMAMA, **SIXTINUS**, a profound scholar, professor of Hebrew in the university of Franeker, was a native of Friesland, and died in 1629. He compared the Dutch translation of the Bible with the original and the best translations; and printed a criticism of the translation of the Pentateuch, and another of the Vulgate translations of the historical books of the Old Testament, Job, the Psalms, and Canticles, wherein he showed so forcibly the importance of consulting the originals, that some synods thereafter made a knowledge of the Hebrew and Greek text of the Bible indispensable to admission to the pulpit.

AMAMBAHI, a mountain range, about 200 miles long, constituting the water-shed between the Parana and Paraguay rivers.—Also, a tributary of the Parana, about 100 miles long.

AMAN, JOHANN, imperial chief architect at Vienna, born 1765 at the former abbey of St. Blasien in Baden. He early evinced an irrepressible genius for architecture, and he was sent to Freiburg to receive special instruction. Thence he went to the academy at Vienna in 1789. In 1797 the emperor commissioned him to finish the internal decorations of the court-chapel on the plan of those of St. Maria Maggiore in Rome. He afterward beautified Vienna with many public buildings, such as a theatre, a market house, and a hospital. In 1808 the emperor made him court-architect, and in 1812 he was appointed imperial chief architect.

AMANA, a river of Venezuela, about 140 miles long, emptying into the gulf of Paria.—Also, a lake in Brazil, 20 miles long, and 10 wide, in 2° 85' S. lat. and 64° 38' W. long.

AMANIEU DES ESCOAS, a troubadour of the 18th century, who lived at the court of James II., king of Aragon. He was of a family of Gascon knights, one of whom in 1217 came to the aid of the count of Toulouse against Simon de Montfort. Four of his poems remain, one of which is a moral epistle addressed to a young person entering the service of a great lady, another contains instructions for a young lady of his time, in which minute and abundant lessons are given concerning dress, manners, and customs; and all his pieces treat with great prolixity of loves, and courtesies, and social maxims.

AMANN, HEINRICH, the regular professor of Roman civil and canon law of the university of Freiburg, born Dec. 28, 1786, and a favorite pupil of Rotteck's. He is principally noted for his rationalistic attacks upon Catholicity, and especially upon the celibacy of the clergy. Amann is not a Protestant, but he wishes to reform Catholicity.

AMANTHON, CLAUDE NICOLAS, a French publicist, born at Villers-les-Ports, Jan. 20, 1760, died Sept. 28, 1835. He was a great provincial light, and enjoyed a considerable local reputation at Dijon. He never made his appearance in Paris, thinking it better to hold the first rank in Dijon and Auxonne, than the tenth in the metropolis.

AMANUS, the ancient name of a mountain range in Asia Minor, a branch of Mount Taurus, about 160 miles long, and extending from the sea of Cilicia to the Euphrates. It bounds Syria on the north.

AMAR, J. B. ANDRÉ, a member of the national convention of France, was born at Grenoble, toward 1750. He became advocate to the parliament, and held the office of treasurer of France in his native city. On the first breaking out of the revolution, he professed moderate opinions, but soon sided with the most ardent

revolutionists. In 1792 he was elected one of the deputies for the department of Isere, and on entering the convention displayed at once the rashness of his political passions. His naturally suspicious disposition, aggravated by that feverish feeling which seemed to have seized upon many leaders of the revolution, impelled him to become one of the most unrelenting denouncers of those he called aristocrats, that is, men less devoted to revolutionary ideas. When, on the opening of the trial of Louis XVI., Lanjuinais eloquently pleaded the incompetency of the convention as a court of justice, Amar contended that the assembly should assume the right of pronouncing judgment upon such a fact as tyranny; and acting upon this opinion, he afterward voted for the death of the king; for his execution within 24 hours; and for the rejection of the appeal to the people. After the death of the king, he denounced as a traitor Kellerman, the hero of Valmy, then in command of the French army of the Alps. Being sent as a commissary to his own department, he showed himself a merciless persecutor of his neighbors; against the Girondists, especially, he gave free course to his rage. He systematically denounced them on every occasion, and being named a member of the committee of general security, he was enabled to gratify his hatred by presenting a report against the so-called Brissot faction, in consequence of which 78 deputies were put under arrest and 46 arraigned at once before the revolutionary tribunal. A few weeks afterward 21 of them died on the scaffold, most of the death-warrants being signed by Amar himself. This thirst for blood was next turned against many of those with whom he had previously been on good terms; he contributed his part to the fall of the Dantonists, called then *modérés*, and the Hebertists, stigmatized as anarchists. He appeared to favor Robespierre's system, but it was not long before he looked on this idol of the revolution with a suspicious eye; and when the moderate party, headed by Tallien, who had been Danton's secretary, conspired against Robespierre, Amar, with 2 other members of the committee of general security, vigorously aided them. In the sitting of the 8th of Thermidor he was one of the interrupters of Robespierre, and materially contributed to his defeat before the convention. Nevertheless his sincerity was soon suspected; he had been so long one of the followers of the fallen dictator, that he was accused, not without appearance of truth, of being still the abettor of his system; but he so skilfully managed his defence that the convention decreed that his whole conduct had been "in accordance with the national wishes." This circumstance, however, estranged him from the Thermidorians, and when his friends Collot d'Herbois, Billaud Varennes, and Barrière, late members of the committee of public safety, were condemned to be transported, he was bold enough to present himself as their advocate. The consequence of this act was his con-

finement in the fortress of Ham. He regained his liberty by the decrees of amnesty rendered by the convention on its final adjournment. Amar was living in Paris in obscurity, when, by order of the directory, he was arrested as an accomplice in the conspiracy of Drouet and Babœuf; he was tried before the national court at Vendôme, but was not condemned, no legal testimony having been brought against him. However, by virtue of the law of the 22d Floreal, he was exiled from Paris by order of an inferior court. His political life was now ended; he passed the years of Napoleon's reign in retirement, refusing to take any oath or to accept of any office; in consequence of which he was not molested on the restoration of the Bourbons. He died in comparative tranquillity at Paris in 1816. Whatever faults he may be reproached with, it must be confessed that his character had some redeeming points; his suspiciousness and cruelty were sometimes balanced by energy, courage, and generous impulses. His disinterestedness was never questioned.

AMAR-DURIVIER, JEAN AUGUSTIN, a French man of letters, born in Paris, 1765, died Jan. 25, 1837. He graduated at the *Collège de Montaigu*, and followed the profession of a teacher. In 1808 he was appointed curator of the Mazarin library, in Paris, and continued to hold this employment until his death. He composed a great number of educational works, translated into French the fables of Gay and other English fabulists, the *chefs-d'œuvre* of Goldoni from the Italian, and selections from the most celebrated of the Latin poets. A complete edition of the works of J. B. Rousseau, with critical notes, and an essay upon the life and works of the author, in 5 vols., Paris, 1820, is another proof of his industry. He also wrote for the periodicals of the day.

AMARA SINHA, an ancient Hindoo grammarian, supposed to have flourished in the latter part of the 5th century of our era. He compiled a very valuable vocabulary of Sanscrit nouns, containing about 10,000 words, and called *Amara Kosha*, or the Thesaurus of Amara. He belonged to the sect of the Buddhists, and all his other writings were destroyed during the persecution maintained against them by the Brahmins for centuries.

AMARANTE, the name of an order of knighthood, instituted by Christina, the famous queen of Sweden, in the following manner: The Swedes were in the habit of celebrating every year a feast, which continued with various entertainments through one whole night, and was called Wirthschaft. In 1653, Christina changed its name, ordering it to be called the feast of the gods. She herself assumed the name of Amarante (unfading or immortal) at this feast, and the principal persons of her court represented different gods, who were waited upon at table by the young nobility, dressed as nymphs and shepherds. At the close of the feast she gave her robe, which was studded with diamonds, to be torn in pieces

and divided among the revellers, and in memory of this night founded the above order—whose members consisted of the 16 lords and as many ladies, who were present at the feast. They were bound not to marry, or, if they were already married, never to form a second union. The order lost its importance in 1658, when the queen became a Catholic, and has never been revived.

AMARANTH (*amarantus*, Gr., a privative, *μαρᾶν*, to wither, *ανθος*, flower, because the flowers retain their bright colors when dead), a genus of the family of *amaranthaceæ*. This genus is rich in species, most of which grow within the tropics (about 60 in Asia, 105 in America, 10 in Africa), some without the tropics (about 20 in Asia, 25 in America, 28 in New Holland, several in Africa, 5 in Europe), either in groups or singly, in dry stony situations or among thickets, few in salt-marshes. The most ornamental exotic species, cultivated in Europe and in the United States, all annuals, are: *A. caudatus* (prince's-feather), native of India, from 2 to 3 feet high; leaves oval, oblong, reddish; flowers crimson, in long-hanging clusters; a gigantic variety is 9 feet high;—*A. sanguineus*, of India; stem and leaves blood-red; leaves oval, often emarginate; flowers red, small, adillery, with internodal clusters;—*A. speciosus*, of Nepal; pyramidal, 6 feet high; flowers purplish-crimson along the branches;—*A. tricolor*, of China; branchy, 8 feet high; leaves yellow, red, and green; flowers green, lateral. These hardy species can be sown in the open border, while the less hardy require a gentle hot-bed, whence they may be potted off singly, in rich soil, and well watered. The above-named species blossom from June to October. Many of the species, having mucilaginous leaves, are used as pot-herbs, with lemon-juice;—*A. viridis* is emollient, good for cataplasms; the seeds of *A. frumentaceus* and *amarthana* are eaten in India;—*A. obtusifolius* is diuretic; some others are variously employed in South America. Most akin to it are the genera *celosia* (coxcomb), *gompheura* (English clover), and the family of *chenopodiaceæ*.

AMARAPOORA, a city of the Burman empire, 6 miles east of Ava, near the left bank of the Irrawaddy. It was founded in 1788, and made the capital of the country, but in 1819 the seat of government was transferred again to Ava. In March, 1810, the whole city, then containing over 170,000 inhabitants, was burnt to the ground. In 1827, the population was not over 80,000. Many of the public buildings present a magnificent spectacle, having their roofs richly gilt within and without. One of its temples, a vast edifice adorned with sculptures, contains the colossal bronze statue of Gaudama, the last representative of Buddha on earth. The manufacture of jewelry was formerly carried on very extensively, a whole street being occupied by the goldsmiths.

AMARGURA, one of the Friendly Islands in

the South Pacific ocean. It is rocky and volcanic, possessing one active volcano, which bears the same name. Lat. 17° 58' S. long. 174° 16' W.

AMARI, MICHELE, an Italian historian, born at Palermo, July 7, 1806. His love for an English lady, though not reciprocated, led him to the study of the English language, of which the first fruit was a translation of Scott's poem of Marmion. In April, 1842, after a labor of many years, he published his history, *La Guerra del Vespro Siciliano*. The book was suppressed, and the author barely escaped to France. It was translated into German by J. F. Schröder, and into English by the earl of Ellesmere. A 4th edition of the original was published at Florence in 1851. In Paris Amari studied Arabic in order to fit himself for compiling a history of Sicily while under Saracen domination. The revolution of 1848 distracted him from this occupation, and he was for a time finance-minister of the provisional government of Sicily. On April 22, 1849, he was again compelled to take flight from his native island and return to his Arabic studies in Paris.

AMARIBO, a river in French Guiana. It rises in lat. 8° 35' N., and falls into the Atlantic ocean after a course of 146 miles.

AMAROO, a Hindostan poet, supposed to have flourished toward the dawn of the Christian era, is the author of a poetical and somewhat erotic effusion on the pleasure and pains which Kama, the Hindoo god of love, prepares for the sons and daughters of humanity. This production of the golden days of Hindoo literature has as its title: *Amaroti-Shatacam*, or Amaroo's *Centuria*. It is in reality composed of a hundred poems, half of which have been translated into French by a French writer, M. de Chézy, under the *nom de plume* of Apudy.

AMASIA, or **AMASIYAH**, a city of Asiatic Turkey; the birth-place of Strabo; pop. 80,000. It was once a free town of Cappadocia. It has ruins of ancient edifices, many fine public baths, and the mosque of Sultan Bajazet, a fine edifice with 2 lofty stone minarets.

AMASIS, or **Amosis** (*Aah-mes* or *Aah-mos*, engendered by the moon). Two Egyptian kings are known by this name. The one was the last Pharaoh of the 17th, the other of the 26th dynasty. The first is supposed to have reigned 1840 B. C., or at the time of the Exodus. He warred against the Hyksos or herdsmen of lower Egypt, shut them up in a large fortified city, and finally expelled or obliged them to emigrate. Various origins are attributed to these Hyksos, and investigators in history call them in turn Jews and Phœnicians—both of Semitic race; or Aryans, Pelasgians, of the Japhetic Caucasian or Hindoo family. The first Amasis was considered as the savior of his country, and his hieroglyphic surname was Sun, the lord of watchfulness.—The second Amasis reigned about 570 B. C. He erected monuments at Memphis and Saïs, was a good sovereign, is mentioned especially by Herodotus

as having had friendly intercourse with Solon, and with the celebrated Polycrates of Samos. Under his son Psammetichus, who reigned only 6 months, Egypt was conquered by Cambyses and the Persians.

AMATHUS, a city of Cyprus, from which Venus took her name of Amathusia, she being worshipped there with special honors.

AMATI, the name of a family of Cremona, in Italy, distinguished as makers of violins. The instruments constructed by Antonio and Gerolamo Amati, about the year 1650, are held in especial esteem by musical men. They are known by the general name of *Cremonas*, and the few in existence are easily recognized by their elegance of model and singular purity and sweetness of tone. Countless attempts to improve upon the construction of the violin have produced nothing superior to the instruments of the Amatis, which are still considered more valuable than any of modern construction.—Andra and Nicolo Amati were also members of this family, and Steiner and the celebrated Stradivarius pupils in its school.

AMATITLAN, or **AMATTAN**. I. A lake in Guatemala, Central America, about 18 miles south-east from the city of Guatemala. The lake is about 9 miles long and 8 wide, and is of great depth. It is almost encircled by high mountains, and is resorted to by the inhabitants of the city of Guatemala as a bathing place. Its waters flow out through the river Michatoyat. II. A town on the east side of this lake, where the Jesuits formerly had an establishment with extensive sugar plantations near at hand. The houses are all of one story, and most of them are built of mud. The water of the wells of this town is impregnated with alum and salt, but in those of the vicinity it is nearly pure, but very hot. In the low grounds near the lake, boiling water is obtained at a depth of two or three yards below the surface of the ground, and in some places gushes out in springs. The principal business of the place is the raising of the cochineal, the production of which has largely increased of late years. The inhabitants are mostly samboes and mulattoes, and number from 10,000 to 12,000.

AMATO, GIOVANNI ANTONIO D', one of the old Italian painters, born at Naples, 1475, died there 1555. He never commenced a picture without first taking the sacrament. He would refuse to paint a woman unless completely dressed. Impressed with this somewhat Puritan feeling, he would not paint the decorations of the triumphal arch erected in honor of Charles V., when he visited Naples. His style is antiquated for his age, and resembles that of Perugino. He wrote a commentary upon difficult passages of the Scriptures.

AMATUS, LUSITANUS, whose proper name was JOAO RODRIGUEZ DE CASTELLO BIANCO, a Jewish physician, born 1511 in Portugal, died in 1582. He studied at Salamanca under Aldretus. He travelled in France, the Low Countries, and in Italy. He dissected 12 human

corpses in Ferrara, which was a great feat for a time when religious and popular prejudices ran so strong against the practical prosecution of anatomical science. Being a Jew, he was obliged to leave Ancona after the accession of Paul IV. in 1555, and fled from city to city to save himself from the inquisition. At last he obtained safe refuge at Thessalonica in Macedonia, with the loss of his library, his papers, and the chief part of his fortune. In the society of the celebrated synagogue in that town he passed the remainder of his days. He left some medical treatises behind him, and was altogether one of the boldest and most truly scientific physicians of his day.

AMAUROSIS (Gr. *αμαυρωσις*, to darken or make obscure). This disease was formerly named *gutta serena*, from a notion long prevalent in the schools that all diseases are caused by some deleterious humor circulating in the blood, or diffused in the tissues of the part affected. The epithet "serene" indicates comparative freedom from pain, and the bright, clear aspect of the eye in this kind of blindness. It is now known, however, that this loss of vision arises from a temporary or a permanent derangement of the nerves of the eye, and mainly of the optic nerve, whatever be the cause of that derangement. It may be produced by simple pressure on the optic nerve from the growth of a tumor, or from apoplectic effusions within the head; and in this case it is analogous to the paralysis of a limb, or of the tongue, or any other organ. The causes are most usually exposure of the eye to too bright a light, as that of the bright reflection of snow fields, in the polar regions; or from over-exertion of the eye in laborious study, especially at night, or in the occupation of a watchmaker.—The most frequent seat of the disease is in the retina; the next is probably in that portion of the optic nerve within the cranium, being in direct communication with the brain both locally and functionally, and liable to be affected by diseases which affect that organ. Recent observations and experiments have also proved that the affection of the optic nerve may be secondary, the primary seat of the disease being in other nerves connected with the eye, though not immediately subservient to vision. It may also be symptomatic of irritation in some distant organ affecting the nerves of the eye by reflex action; the temporary failure of sight during a bilious attack being of this nature. Hysteria and worms in the intestinal canal may also produce temporary blindness from this reflex action of the nerves from one part of the organism to another. It is supposed that amaurosis is often dependent on congestion of the blood vessels, sometimes of an inflammatory nature, and sometimes not; for it may be produced by excessive loss of blood, immoderate discharges or secretions, and by mere debility. Confirmed amaurosis is seldom cured; but skilful treatment is often successful in the early stages of the disease. No time should be lost, there-

fore, in consulting a physician in the commencement of this affection. The poet Milton's blindness was amaurosis, caused, no doubt, by overstraining the sight in laborious and continuous study; and might have been prevented, probably, by timely treatment and sufficient rest from over-exertion.

AMAURY (Gothic, *amalric*, compounded of *amal*, heaven, and *ric*, rich). I. Count of Joppa, born 1185, died July 11, 1178. He was crowned king of Jerusalem, Feb. 16, 1165, on the death of his brother Baldwin III. He was a vain, ambitious, and imprudent prince, and passed the eight years of his reign in making war on the natural ally of the Franks, the Sultan of Egypt, and his only sure support against the inroads of the Seldjuic Turks. II. Of Lusignan, died April 1, 1205, was first king of Cyprus, and was called to the tottering throne of Jerusalem when near its downfall. His nominal reign lasted from 1194 to 1205. He called upon the western nations to aid him against the Saracens, but the crusaders preferred stopping at Constantinople, and partitioning the Byzantine empire, to the more dangerous service against the Moslems. He left the kingdom of Cyprus to his son Hugo de Lusignan. III. Amaury, Amalric, or Himerich, patriarch of Jerusalem, died 1180. He was a great friend of the historian Guillaume of Tyre. IV. Amaury de Chartres. See **ALMARIC OF BEKE**.

AMAXIOHI, a town on the east coast of Santa Maura, one of the Ionian islands. It is situated near the northern extremity of the narrow strait between Santa Maura and the main land. Its harbor is only suited for small vessels, and the town is rendered unhealthy in summer by the neighboring marshes and stagnant waters. The town is subject to earthquakes, and it is perhaps partly for this reason that the houses are mostly built of wood, and of one story only. About a mile north of the town is the strong castle of Santa Maura, where is stationed a British garrison. This castle communicates with the town by a long causeway built on the ruins of an ancient aqueduct, and supported by more than 800 arches. Population of town and castle, 6,000.

AMAZIAH. I. The 9th king of Judah, the son and successor of Joash. The first public act of Amaziah was to put to death the murderers of his father, who had been assassinated in his bed by his servants. Amaziah planned an expedition against the Edomites, who had been in a state of revolt from the kingdom of Judah for more than 50 years. To aid him in this undertaking he first enlisted the king of Israel, who furnished him with 100,000 men, which, in addition to his own force, made an army of 400,000. Thus prepared, a prophet (perhaps Amos) announced to him that he should send away the Israelites. This he did; which so incensed them that they overran the whole country from Beth-horon to Samaria. Amaziah did not, however, relinquish his plan of warring against Edom, but undertook it with

the forces of Judah alone, and was successful. He captured the gods of the Edomites, and introduced their worship into his kingdom, for which the prophet remonstrated with him, and afterward denounced his premature death. He next bent his forces against Israel, but was unsuccessful. He was himself taken captive, but procuring his release, he reigned some 15 years longer, and was assassinated by a conspiracy, after a reign of 29 years, which commenced with the 25th year of his age. II. A priest in Bethel, who superintended the golden calf worship. Because Amos denounced him and his teachings, he procured the banishment of that prophet.

AMAZON, or MARAÑON, called by the natives PARANATINGA, and GUIENA, and by Europeans, MARAÑON, or MARAÑHAM, SOLIMONES, ORELLANA, and AMAZON; the largest river, not only of South America, but of the globe. It has its sources in the Andes, and 8 large rivers have each been considered as the main stream, viz., the Apurimac or Ucayali, the Beni, and the Tunguragua, each rising within less than 100 miles of the Pacific coast. The Apurimac, which has its source in lat. 15° 20' S. and long. 71° 15' W., is the longest of the three. Beside these, the Amazon receives in its course 17 other rivers of the first class and over 200 smaller tributaries, and drains a territory of nearly 2,500,000 square miles. (A. K. Johnston estimates it, on somewhat insufficient data, at 2,016,000.) From the 8d degree of N. latitude to the 19th of S. latitude, a distance, measured by the windings of the mountain chain, of over 2,000 miles, there is not a stream which descends the eastern slope of the Andes, that does not contribute its waters to swell this mighty flood. Yanez Pinçon discovered the mouth of the Amazon, in the year 1500, but the river itself was not explored through its whole course till 1539, when Francis d'Orellana descended it from near Quito to its mouth. A Spanish adventurer, named Marañon, had visited its upper waters in 1518, and gave them his name. According to Lieut. Herndon, who explored the river in connection with Lieut. Gibbon, under the direction of the U. S. government in 1851-'2, its length is 8,944 miles, from Oroya, the source of the Huallaga branch, to the Para mouth. At a distance of 2,880 miles from its mouth, it is 500 yards wide; at Nanta, 2,325 miles from the sea, it is $\frac{1}{2}$ of a mile in width; opposite the mouth of the Japura, it is from 4 to 5 miles wide; 10 miles in width at Gurupa, 85 miles above its mouth; and at its mouth, where a large island divides the current, it is 180 miles in width. Its depth varies from 42 feet, in the upper part of its course, to 812 feet at the Para mouth. The region traversed by the Amazon and its affluents is covered with vast forests, and possesses a soil of extraordinary fertility. "If," says Baron Humboldt, "the name of primeval forest can be given to any forest on the face of the earth, none perhaps can so strictly claim it

as those that fill the connected basin of the Orinoco and the Amazon." The banks of the Amazon are generally elevated considerably above the ordinary height of the river, so that it has few or none of those bayous which cover large tracts in the vicinity of the lower Mississippi. During the rainy season, however, it overflows its banks, and covers districts hundreds of miles in extent. It is perceptibly affected by the tides, according to Lieut. Herndon, as far as Obidos, about 400 miles above its mouth. Its ordinary current varies from 1 to 8.7 miles an hour. The Amazon is connected with the Orinoco through the Rio Negro, one of its largest tributaries, and the Cassiquiare, both navigable streams. It is a remarkable feature of the river, that it has no falls to interrupt its navigation, except near the sources of its head-waters. In the amount of interior navigation opened to the ocean, it far exceeds any other river on the globe. Ships and steamers of from 1,000 to 2,000 tons burthen might be employed on the river, and its principal tributaries, for a combined extent of not less than 10,000 miles, and smaller steamers for at least as much more.—The islands of the Amazon are numerous, and many of them of very considerable extent. Tupinambas, the largest in the course of the river, is about 800 miles in circumference; several others are from 80 to 60 miles in circuit, and a great number from 12 to 15 miles. At its embouchure, the large quantities of alluvial deposits brought down, have caused the formation of an extensive delta, and although volcanic action probably had much to do with the elevation of the great island of Marajo, or Joannea, which is nearly 450 miles in circumference, yet no small portion of it is the result of alluvial deposition. The river is quite deep at the very edge of the stream, not having those sloping shores which characterize most streams; it swarms with alligators through the greater part of its course. Fish also exist in abundance, and of choice varieties. Turtles of the most delicious kind, frogs, lizards, water serpents, and other reptiles, are found in great numbers in its waters; and along its densely wooded banks, jaguars, bears, panthers, and other wild animals, make their haunts.—The bore, or *pororoca*, as it is termed by the natives, is a phenomenon worthy of remark. It was well described by La Condamine, more than a hundred years ago, in these terms: "During three days before the new and full moons, the period of the highest tides, the sea, instead of occupying 6 hours to reach its flood, swells to its highest limit in 1 or 2 minutes. The noise of this terrible flood is heard 5 or 6 miles, and increases as it approaches. Presently you see a liquid promontory, 12 or 15 feet high, followed by another, and another, and sometimes by a fourth. These watery mountains spread across the whole channel, and advance with a prodigious rapidity, rending and crushing every thing in their way. Immense trees are instant-

ly uprooted by it, and sometimes whole tracts of land are swept away." No vessel can withstand the fury of such a tide, and hence those accustomed to the navigation of the river, avail themselves of coves, or resting places, where their vessels may be sheltered from its violence. —The mouths of the Amazon are almost directly under the equator, and in long. 50° W. So vast is the volume of water which it pours into the Atlantic, and so great the violence of its current, that its waters are said to remain unmixed with those of the ocean for a distance of more than 200 miles from the coast. —The name Amazon has been attributed to the alleged discovery of armed women on its banks by D'Orellana in 1539, but it is quite as possible that the name suggested the fabulous story, which he published on his return, as that the actual discovery of female warriors gave rise to the name. The Indians called the river, near its mouth, *Amassona*, "the boat-destroyer," from the destruction of their boats by the *pororoca*, and this name, pronounced in D'Orellana's hearing, may have suggested the story of the Amazona, and from a fancied resemblance, a real one was soon conjectured, and these conjectures embodied in his reports as truth. On this subject, see **AMAZONS OF SOUTH AMERICA**.

AMAZONIA was the title given by the geographers of the 17th and 18th centuries to an unexplored tract in the central portion of the Amazon basin, which was supposed to be inhabited by a tribe of warlike women, who governed themselves, and would tolerate no males in their community. Later explorations have demonstrated that no such tribe now exists, and that there was no defined territory which these modern Amazons, if any such existed, could be ascertained to have inhabited, and hence, the name has been stricken from the maps.

AMAZONS, a race of warlike women, whose original seat is said to have been in the country adjoining the Caucasus. They were supposed to be governed by a queen, and to propagate their species by cohabiting once every year with the Gargareans, a nation of men whose territory was separated from that of the Amazons by a chain of mountains. Their male children were either sent to the Gargareans or put to death. Their female children were deprived of the right breast, and trained by their Amazon mothers to war, hunting, riding, and agriculture. The favorite gods of the Amazons were Mars, and the Taurian Diana. The Amazons are said to have made extensive conquests in the early ages, in Asia, Africa, and Europe, and to have founded several cities in Asia Minor, and the islands of the *Ægean*. The opinions of ancient writers are very much divided concerning these extraordinary women. The more judicious, like Strabo, doubt the existence of any such race, and have little faith in the accounts current respecting them. The more credulous, like Curtius and Diodorus, raise them to the dignity of a historical

race, and speak of them with as much gravity as if they had been, at some time or other, an actually existing community. The achievements of the Amazons were a favorite subject with the Greek artists, and some of the most exquisite works of ancient art that have descended to us, are representations of the battles of those female warriors with their male enemies.

AMAZONS OF SOUTH AMERICA. It seems almost impossible to doubt that there must have been some foundation for the legend of the existence of a community of female warriors on or near the upper waters of the Amazon, for travellers who explored South America from different directions, as, for instance, from the Orinoco, from the La Plata, from the Andes, and from the Brazilian coast, have all testified to their existence, and with a remarkable agreement in the details of their narrative. Some of these travellers, too, like La Condamine, were men of science, and of cautious temperament, not easily beguiled by the romantic stories of the Indian caciques. No one of these explorers, however, professes to have seen these wonderful women except D'Orellana, and from the evidence of La Condamine, in 1748, it would appear that they had become extinct, or left the country, some three generations before. "We spoke," he says, "at Coari, to a man about 70 years of age, who assured us that his grandfather had seen these women pass the mouth of the Uchivara, that they came from that of the Cayamé, that he had spoken to 4 of them," &c. The possession of the green stones (*jade* or *sauzenite*), which all the Indian tribes attributed to them, and many of which were engraved with the symbols of the Aztec worship, would seem to indicate that they were a colony from Mexico, as this stone is abundant there, and was used in their religious rites, while it has never been discovered in South America. The conclusions to which Baron Humboldt comes, on a review of these traditions, some of which he himself found still in existence in South America, is probably the correct one. "What," says he, "must we conclude from the narrative of the ancient missionary of Encaramada (Father Gili)? Not that there were Amazons on the Uchivara, but that women in different parts of America, wearied with the state of slavery in which they were held by the men, united themselves like the fugitive negroes, in a palenque (a rude fort), that the desire of preserving their independence rendered them warriors, and that they received visits from a neighboring and friendly tribe, perhaps a little less methodically than tradition relates." Those who would see the collected evidence on this subject, and the singular traditions which were in existence among the Indians respecting them, will do well to consult a very elaborate article on "The Amazons of South America," which appeared in "Putnam's Monthly Magazine" for September, 1855. The following are the prin-

cial authorities on the subject: Herrera, "General History of America;" Zarate, "The Conquest of Peru," published 1555; Southey, "History of Brazil;" Cayley, "Life of Raleigh;" La Condamine, "Voyage down the Amazon;" Father Gili, "Saggio di Storia Americana;" Humboldt, "Travels in America," 7 vols.; Peter Martyr, "History," vol. 1.

AMBASSADOR (Fr. *ambassadeur*), originally meant, and is still used in a general sense as meaning any minister authorized to represent a government abroad. In its more proper and distinctive sense, it indicates the highest class of foreign ministers, the other two classes being envoys extraordinary or ministers plenipotentiary, and *chargés d'affaires*. A factitious distinction which used to be taken between ambassadors from kings and those from republics, as regards their diplomatic position at the court where they were accredited, is fast wearing away. Some of the less important nations, as Prussia, do not send ambassadors. England has them ordinarily only at the courts of France and Turkey; while the United States rarely dispatches one, except upon a special occasion.

AMBATO, a town of Ecuador, about 100 miles from Quito. In the year 1698 it was destroyed by an eruption of Cotopaxi, but was soon rebuilt, and became even more flourishing than formerly. It contains some good buildings and has a thriving trade, consisting principally of grain, sugar, and cochineal. Pop. 12,000.

AMBEER, a ruined town of Hindostan, the ancient capital of the Jeypoor territory. The town is situated on the margin of a lake, and near it are a fortified palace and a castle.

AMBELAKIA, a town in European Turkey on the west declivity of Mt. Ossa, and 15 miles N. N. E. from Larissa. The inhabitants are entirely Greeks. During the last part of the last century and the first part of the present, it was distinguished for the manufacture of cotton yarn. In their haste to be rich, the people formed themselves into a joint stock company, out of which arose disagreements and destructive litigation. The introduction of cheaper English yarn into the markets of the East, completed their ruin.

AMBER. No mineral substance presents features of interest so peculiar as this. Obscure in its origin, found in loose pieces in alluvial deposits, or scattered along the coast after severe storms had swept the bottom of the sea, it was regarded by the ancient Greeks and Romans with superstition and mystery. These beautiful tear drops, clear and transparent, were shed by the sisters of Phaëton, and petrified as they fell into the sea. The electrical phenomena first exhibited by this substance, which they called *ηλεκτρον*, added to its mystery. It was even believed by some of the philosophers to be possessed of a soul. The Arabs noticing the same phenomena gave it the name in their language of *karabé*, catch-chaff. And now when its obscurity and mystery have departed before the

light of science, it must still be regarded with peculiar interest for its singular history and qualities. Amber is now generally understood to be a fossilized vegetable gum. The trees, from which it exuded, stood in forests of past epochs, and are now found forming strata of bituminous wood beneath beds of sand and clay. The wood is more or less impregnated with the amber; and this is also met with depending from the trunks in the form of stalactites, and again in rounded pieces mixed with pyrites and coarse sand under the layer of trees. Such a bed is worked as a mine for the amber near the coast of Prussia. The fossil stratum is from 40 to 50 feet thick, and is followed to the depth of 100 feet below the surface. In other countries it is found in beds of brown coal and of lignite; and it is probable that the pieces of it picked up on the seashores have been washed out from the extension of these repositories beneath the waters of the sea. On the Prussian coast of the Baltic, between Königsberg and Memel, amber is more abundant than at any other known locality. From this source the great demand for this material in the Mohammedan countries is principally supplied. Its collection affords a revenue to the crown of Prussia, to which it appertains, of \$16,000 or \$17,000 per annum. It is washed ashore in considerable quantities near the village of Stürmen. Not only is it found in the sands on the shore, but also in the interior more or less deep beneath the surface of the earth. It was at first accidentally discovered in this locality when ploughing the soil, and this gave rise in 1559 to the institution of proper amber-diggings. A shaft was sunk to the depth of about 17 feet through strata first of quartz-sand of a dirty yellow color, then of rich blue loam, and next of light gray sandstone. In the last was found splintered amber. Under this, a granite rock having been penetrated, was found the real amber-bed, consisting of gray rich earth mixed with peat and different minerals. The quantity and quality of amber in the first digging occasioned the sinking of a new shaft near the village of Kratopellen, but in 1790 it was completely destroyed by the falling in of a mass of earth, and this mode of digging has in consequence been discontinued. At present the chief amber diggings in the north of Prussia are near Neu Kühren, Brusterort, Lapönnen, and Rauschen. These are worked by an open excavation into the mountain near its base, in which the amber-bearing bed is laid bare, sometimes presenting a thickness of 2½ feet. Exhausted in one place, a new excavation exposes it in another. The fishing and picking of amber from the sea furnishes employment to great numbers of people. This is generally undertaken after a storm, when the swell of the waves is moderate. The workmen wade into the sea, and catch in nets the sea-weed which is borne in by the waves. This is spread on the shore, where the women and children collect from it pieces of amber of various sizes, which is delivered by them to the

superintendent. This mode of procuring amber is always less laborious and often more productive than digging. In winter, when the sea by the shore is covered with ice, the ice-crust is broken through and the sea-weed and amber picked up through the opening. An attempt has been made, by means of a diving-machine, to obtain amber further from the land, but it proved unsuccessful. The fishers frequently go out in small boats, when the supply near the shore fails, and in this way a large quantity of amber is found, though it is less valuable than that gained by digging. Amber is used almost wholly for small ornaments, as necklaces, and especially for the mouth-pieces of pipes. A varnish is also prepared from it; as well as an oil used in medicine, and succinic acid, a useful reagent in chemical investigations, so called from *succinum*, the Latin word for amber. The largest pieces of amber known are one of 11, one of 18, and one of 18 pounds weight. The last is in the royal cabinet at Berlin. It was found in Lithuania, 12 miles back from the Baltic, a little beneath the surface of the ground. The value of the specimens is not at all proportionate to their sizes. A piece of a pound weight might sell for \$50, while one of 18 lbs. weight would readily bring \$5,000.—Amber is of a yellow brownish, or whitish brown color, transparent or translucent, and resembles resin. Its specific gravity is 1.08. It is nearly as hard as calcareous spar, and is susceptible of a fine polish. When rubbed it becomes negatively electrical. Heated to 448° F. it melts, and then takes fire, burning with a yellow flame, and evolving much black smoke, and an agreeable odor. The analyses that have been made of it, give proportions of carbon varying from 70 to 80 per cent., hydrogen from 7 to 11, and oxygen from 7 to 8. Its principal ingredient is a resin insoluble in alcohol, which forms 80 to 90 per cent. of the whole. With this is found a resin soluble with difficulty in alcohol, and a trace of an odorous volatile oil. The products of its distillation are inflammable gases, water holding succinic and acetic acids, and empyreumatic oil in solution (the spirits of amber of old pharmacy), sublimed succinic acid (salt of amber), and an empyreumatic oil (oil of amber). The residue is 12 to 18 per cent. of charcoal.—Pieces of amber are often met with containing the remains of insects, that have become entangled in the substance, when it was of thinner consistency. Their legs and wings are sometimes seen detached from the bodies, as if the insects had struggled hard to disengage themselves from the sticky mass. These insects resemble more those of tropical climates, than such as are now known in the regions where amber is found. Leaves of fern-plants, and occasionally some mineral substances, are also met with in amber.—It is not known when the property possessed by amber of attracting light substances, when rubbed, was first noticed. It is spoken of by Thales of Miletus, Theophrastus (B. C. 321),

and Pliny (A. D. 70). Electricity is excited to such a degree in the processes of working amber into the forms in which it is sold, that the workmen are affected with nervous tremors, and are obliged to change frequently the pieces they handle, that the excited electricity may be dispersed. Amber is found at various localities in this country, occurring in the green-sand formation and in the clays which succeed it. As in Europe, it is associated with lignite. The principal localities are at Amboy, New Jersey; at Gay-Head on Martha's Vineyard; and at Cape Sable in Maryland.

AMBERG, a walled town of Bavaria, on the river Vils, 26 miles east of Nuremberg. Pop. 11,000. It was formerly the capital of the circle of the Upper Palatinate, and its court of appeal is still held there. It has a royal manufactory of fire-arms, where upward of 20,000 excellent muskets are made annually. There is an extensive iron mine in the neighborhood. The town is well built, and the church of St. Martin contains some fine paintings and monuments.

AMBERGER, CHRISTOPH, a famous German painter, of Amberg (whence the name), was born about 1490, and died in 1568. His best productions are his portraits, in the style of Holbein, whom he imitated. His historical paintings are small, and hard, and sharp in style.

AMBERGRIS, a perfume, generally used in its alcoholic solution. It is a morbid secretion of the liver of the spermaceti whale, and is principally found floating upon the seas of warm climates intermixed with remains of the food of whales—it is also met with in the intestines of the whale. When of good quality it is of a bright gray color, streaked with black and yellow, so soft that it may be flattened in the fingers, and exhaling an agreeable odor, if rubbed or heated. Its fracture presents a fine grain—its cut surface, a waxy appearance. It is somewhat lighter than water, freezes at 140° to 150° F., and at a higher temperature gives out a white smoke, which condenses into a crystalline fatty matter. It contains about 85 per cent. of a peculiar fatty, fragrant substance called *ambreine*, which is extracted by boiling in alcohol, and separating the crystals that form in the cooled solution.—Persons engaged in whale fishing look for ambergris in the intestines of the spermaceti whale, and are most successful in finding it in those that appear torpid, sick, and lean, from whence it would seem that the substance is a product of disease. It is in the lower part only of the intestinal canal, mixed with the feces, that the substance is found. The lumps of it are from 8 inches to a foot in diameter, and from 1 pound to 20 or 30 pounds in weight. The largest piece known was bought by the Dutch East India company of the king of Tidore. It weighed 182 pounds. Another piece, weighing 180 pounds, was found inside of a whale near the Windward Islands. This piece sold for £500 sterling. Genuine ambergris emits a fragrant smell when a hot needle is thrust into it. It also melts like fat

to a uniform consistence. The counterfeit does not present these peculiarities.

AMBERGRIS, an island belonging to Yucatan, off the N. E. coast of British Honduras. It is a barren, uninhabited spot, measuring about 20 miles in length and 8 miles in average breadth. It derives its name from the great quantities of ambergris found along its shores.

AMBERT, the chief town of the arrondissement of Ambert, in the department of Puy de Dome, in France. Pop. in 1852, 8,133. It is situated on the river Dore, 35 miles S. E. from Clermont. Its chief manufactures are paper for printing and engraving, and cheese; ribbons, lace, woollens, and pins, are also made.—The arrondissement consists of 8 cantons, subdivided into 52 communes, an area of 477 square miles, and 90,048 inhabitants.

AMBIDEXTER (Lat. *ambo*, two, and *dextra*, right hand), a person who uses both hands with equal facility. Some theorists contend that all mankind would be ambidexter, but for education or habit, in proof of which hypothesis they instance the fact that children just born use their hands indifferently. Others ascribe the difference between people in this regard to a difference in organization, the heart, in the case of a right-handed person, throwing the blood more directly into the right than into the left arm. However this may be, true ambidexters are rarely seen, almost everybody being either right-handed or left-handed.—Among English lawyers, the term anciently designating a bailiff who took with both hands; in later times, a juror who accepts money for his verdict from both sides.

AMBIL, a small island in the Philippine group, lying to the S. W. of Manila about 70 miles. It contains a lofty volcanic mountain.

AMBIORIX, one of the most famous of the Gallic chiefs, who fought with Julius Cæsar toward the middle of the 1st century B. C. Conjointly with the superannuated Cativulus, he was ruling over the Eburones or Servians when the country was invaded by Cæsar, who strove to destroy his patriotism, but only succeeded in making him dissemble it, while waiting for the favorable moment. During Cæsar's excursion to England, Ambiorix organized an extensive conspiracy, which broke out after the Roman legions had gone into winter quarters. Having by a shrewd stratagem induced the garrison of one fort to leave it, he massacred them to a man. He was about to attack another camp, when Cæsar marched to its relief, and with 7,000 men managed to defeat 70,000 with great slaughter. Gaul in terror at once laid down its arms, but Ambiorix, with 4 faithful friends, made his escape into the forests.

AMBLAU, one of the numerous islands that form the Malay Archipelago, in lat. 8° 52' S. long. 127° 16' E., 12 miles from the fertile island of Booro. It is about 10 miles long, contains about 800 inhabitants, and is dependent upon the Dutch government of Amboyna.

AMBLESIDE, a market town of Westmore-

land, at the northern extremity of lake Windermere, much visited in summer on account of the beautiful scenery in its vicinity. It is near Rydal Mount, for many years the residence of Wordsworth. There are traces of Roman fortifications in the neighborhood, where coins and other antiquities are often found. The town is 12 miles N. W. from Kendal. Pop. in 1851, 1,502.

AMBLETEUSE, a small and much decayed seaport of France, on the English Channel, in the department of Pas de Calais, 5 miles N. from Boulogne. Here James II. landed on his flight from England in 1689. Napoleon, while meditating an invasion of England in 1804, attempted unsuccessfully to improve the harbor of Ambleteuse for his flat-bottomed boats. In the vicinity is the famous granite column erected by Napoleon to the grand army in 1805.

AMBODIK, **NESTORIUS MAXIMOWITZ**, a Russian physician, born at Veprik in 1740, in the government of Pultowa, died in 1812. He was imperial accoucheur, and wrote a number of essays and medical works in Russian, German, and Latin. He is remarkable as one of the first Russian physicians who wrote in his native tongue.

AMBOISE, a town of France, in the department of Indre et Loire (formerly the province of Touraine), at the junction of the Loire and Masse. Pop. 4,859. Here the religious wars of the 16th century broke out, and here the name of Huguenots was first applied to the Calvinists. The ancient castle, which has been the residence of several kings of France, stands on a rocky precipice, and is almost inaccessible. Abd-el-Kader was confined here during the greater part of his captivity. The town has manufactures of fire-arms and files.

AMBOISE, **GEORGE D'**, first minister of Louis XII., born in 1460, died at Lyons, May 25, 1510. As a younger son he was destined to the church, and was titular bishop of Montanban at the age of 14, and later archbishop of Rouen. During the lifetime of Charles VIII., he belonged to the party of the duke of Orleans; and when the latter ascended the French throne as Louis XII. in 1498, Amboise at once became prime minister. When he prevailed on the court of Rome to annul the marriage of Louis XII. with Jeanne de France, Amboise received the cardinal's hat. He accompanied Louis XII. into Italy, and arranged the affairs of Milan after its conquest by the French troops. At the death of Alexander VI. he aspired to be pope, but the Italian cardinals passed him over, and elected first Pius II., and afterward the Cardinal de la Rovère. He was buried in the cathedral of Rouen, where his nephew erected in his honor a marble tomb. Amboise was a skilful administrator, and for his age an enlightened, prudent adviser. He left a large fortune behind him.

AMBOW, or **AMBAU**, one of the group of the Feejee islands, in the South Pacific, in S. lat.

16° 30' and E. long. 178°. It is only one mile in length, and about half a mile in breadth, but is entirely covered with a town, and its chiefs have a political ascendancy over the neighboring islands. The inhabitants are savage, and often treacherous to the mariners who stop at their island.

AMBOYNA (Malay *Ambun*, dews), an island in the Malay Archipelago, the most important of the group called the Moluccas, lat. 8° 46' S. long. 127° 59' E.; length 80 miles, breadth 10 miles, area about 282 sq. miles; pop. in 1841, 29,592. It was discovered by the Portuguese in 1515, taken by the Dutch in 1607, by the English in 1615, and retaken by the Dutch shortly after. These treated the inhabitants very cruelly. The British again occupied the island from 1796 to the peace of Amiens, and from 1810 till 1814. It is now in possession of the Dutch. The inhabitants consist of *Horaforas*, savage aborigines, who live in the woods; Malays, who compose the bulk of the population; Chinese, who are the chief merchants; Europeans, chiefly Dutch and Portuguese. Mohammedanism is the prevailing religion. Cloves form the staple article of culture and export, and are a monopoly of the Dutch. From 500,000 to 600,000 pounds are produced annually. Sago is extensively cultivated, being the chief food of the inhabitants. Superior indigo and poor coffee are also grown. Birds and serpents abound. Deer and wild hogs are found in the forests.—**AMBOYNA**, capital of the island of the same name, and of the Dutch government of Amboyna, which includes the isles of Ceram, Amblau, and Booroo. Pop. in 1841, 8,966; has 2 Christian churches, a hospital, public garden, &c. Good anchorage and harbor in Amboyna bay. It is defended by Fort Victoria.

AMBRACIA, now **ARTRA**, a town of ancient Greece, on the left bank of the Arachthus, N. of the Ambracian gulf. It was colonized by the Corinthians in 660 B. C., and early acquired importance. About the time of Alexander the Great it became subject to the kings of Epirus. The celebrated Pyrrhus made it his capital, and adorned it with public buildings. At a later period it joined the Aetolian league, was taken by the Roman conquerors in 189 B. C. and stripped of its works of art. Its inhabitants were transported to the city of Nicopolis by Augustus Cæsar, which city had been founded by him to commemorate his victory at Actium, B. C. 31.

AMBRAS, a castle in the Tyrol, near Innsbruck, formerly containing a fine museum of armor, paintings, &c., now at Vienna, and a library, which has been removed to Innsbruck. Among the manuscripts of the collection is a copy of the famous *Heldenbuch*.

AMBRIM, one of the islands of the New Hebrides, Pacific ocean, in lat. 60° 9' 30" S. long. 167° 5' E. It is fertile, well watered, and cultivated, and about 50 miles in circumference.

AMBRIZ, an independent little African king-

dom, S. of Guinea, having a port on the Atlantic, at the mouth of the Ambriz river, 70 miles N. of Loando. Slavery is prohibited, and the slave trade held in abhorrence; horses and beasts of burden are also excluded. Quebranza is the capital. Ambriz has an extensive trade in guma, ivory, &c.

AMBRIZETTE, a small kingdom of Africa in south Guinea. It lies between the rivers Congo and Ambrizette, and has a town on the seacoast about 80 miles N. of Ambriz.

AMBROGI, DOMENICO, a painter of Bologna, in the 17th century, the favorite pupil of Francesco Brigio, who was a distinguished scholar of the Caracci. His forte was design, particularly in cabinet pieces.

AMBRONES, a nation of Gaul, who lived near the Alps between Switzerland and Provence. They accompanied the Cimbri and Teutones in their invasion of the Roman territories, and were routed with great slaughter by Marius, 101 years before Christ. Their women, after a futile attack upon the Roman soldiers who were following in pursuit of the flying foe, offered to yield on the condition that their chastity should be respected. This proposition being rejected, they first slew all their children, and then themselves.

AMBROSCH, JOSEPH JULIUS ATHANASIUS, a German scholar, born at Berlin, Dec. 18, 1804. His father, Joseph Karl Ambrosch, was a celebrated singer and musical composer of that city. The young Ambrosch was educated in his native city, and in 1829 went to Italy, where he remained until 1838, having passed a great portion of this period at Rome. He was appointed, in 1834, professor of archaeology and philology at Breslau, which appointment he still holds. His works are, for the most part, essays on subjects connected with the antiquities of Rome.

AMBROSE, SAINT, doctor in the Latin church of the 4th century. He was born at Treves, in Gaul, in the year 340 of our era, died at Milan in 397. His father was the Roman governor of Gaul, but his mother was an ardent Christian. His sister took the veil from the hands of the bishop, Liberius, and his inclinations and education alike made him a friend to the religion of the cross. He was trained to the profession of law, and intrusted at an early age with the government of a province. His probity and wisdom in this public administration seemed to justify his removal from the chair of secular office to the more important place of bishop, although at the time of his election he had not even been baptized. The various objections and stratagems by which he tried to escape the honor and the charge thus pressed upon him were all disregarded; and at the age of 84 he was consecrated bishop of Milan, and continued to hold this office until his death in the year 397, a period of more than 23 years. His influence in his own age was very great, though upon succeeding ages it has been less important, far less than the influence of Jerome and Augu-

tine, with whose names his is usually joined in the history of the church. He was chosen as a compromise candidate, receiving the suffrages of both parties, at a time when the strife between the Orthodox and the Arians ran very high. His predecessor, Auxentius, was an Arian. The sympathies of Ambrose, however, were decidedly with the supporters of the Nicene creed, and the Arians soon found that they had no favor to expect from him. He would yield no churches for their use, nor would he in any way tolerate their worship. At the same time, he protected an Arian priest from the violence of the mob, and did not allow his own dogmatic preferences to lead him into acts of injustice or tyranny. He resisted firmly the dictation of the Empress Justina, who wished that an Arian bishop should be appointed for the city, and would not consent to any discussion with such a man. His principal controversy, however, was not with heretics in the church, but with the arrogance of the secular power, and with the attempt to resuscitate expiring Paganism. Repeatedly, in the discharge of his duty to the church, was he brought into direct conflict with the highest secular authority. He rebuked Valentinian, defied Maximus, and compelled the great Theodosius to a humiliating penance and submission, paralleled only by the penance of Henry of England at the tomb of Becket, and the penance of Henry of Germany at the palace of Hildebrand. By his remonstrance he prevented the rebuilding of a Jewish synagogue which had been torn down by the Christians in a riot, insisting that Theodosius had no right, even from a sense of justice, to compel the true believers to aid in a work of impiety. If it were a sin to pull the building down, it would be a greater sin to build it up. When all the officers of the court, the senators, and the wise men were silent upon the massacre which in a fit of anger Theodosius had ordered at Thessalonica, Ambrose alone did not fear to speak boldly, and declared to the emperor that his crime was beyond absolution without a special act of penance, and that the mass could not fitly be celebrated in such a presence. His boldness prevailed, and the humble emperor obeyed his orders, and continued ever after to be his firmest friend. His contest with Symmachus, the Roman senator, is scarcely less remarkable. At the instigation of this learned and eloquent man, then prefect of Rome, the senate took occasion of a famine which in the year 383 desolated Italy, to ask that the Pagan worship might be revived, a support given to the Pagan priesthood, and a new altar to "Victory" raised in the capitol. In the default of the Roman bishop, who did not venture to raise his voice, Ambrose was prompt to throw against the scheme all the force of his authority, his zeal, and his eloquence. In answer to the pleading of Symmachus, that the heroism and glory of ancient Rome was bound to its ancient faith and rites, Ambrose urged that the question was not

what was due to the memory of great men, but what was due to the truth of God. Symmachus takes up the frequent claim of the Christians, and demands only toleration, that all religions shall have a fair chance, that the rights of conscience shall be respected, and the citizen be left free to choose the worship that best suits him. Ambrose now returns upon him the old Pagan argument against toleration, insists that a falsehood exposed cannot have equal rights with the truth victorious in spite of its persecution, and vehemently protests that no power on earth has the right to establish the worship of false gods. He has the advantage of his adversary, when he contrasts the simplicity, the disinterestedness, the long-suffering, the voluntary poverty, and the indefatigable zeal of the Christian priests and the Christian virgins, with the ostentation, pride, rapacity, sloth, and worldliness of the Pagan priests and virgins. Ambrose was by no means the equal of his adversary in graces of rhetoric, and fulness of scholarship, but his earnestness, and perhaps in some degree his threatenings, won the cause for him, and the demand of the senate was rejected by the emperor. The inspiration of some of the finest verses of Prudentius, who has been called the first of Christian poets, was borrowed from this plea of Ambrose against Symmachus.—The writings of Ambrose fill 2 folio volumes in the editions of Erasmus (Basel, 1527), and of the Benedictines (Paris, 1686-'90). His exegetical treatises, which are a series of fragments, quaint fancy-pieces with scriptural titles, are unsuccessful specimens of the allegorical style. Ambrose adopted the method of Origen, without the ability of that great master of allegorical explanation. His ethical writings, which are numerous, seem rather to be constructed on heathen models than to be drawn from the text of the gospels. His list of cardinal virtues, "wisdom, justice, firmness, and moderation," leaves out every one of the beatitudes, and reminds us of Cicero more than of Christ. But the meaning which he assigns to these terms gives them an evangelical character, and rescues him from the charge of Stoicism in his philosophy. "Wisdom," as he teaches, is the true relation of man to God, and so synonymous with piety; "justice" is the true relation of man to his brethren, and so is equivalent to brotherly love; "firmness" is the true relation of man to outward events, and so means contentment; and "moderation," the true relation of man to himself, is only another name for self-denial. He divides duties into two classes, partial and perfect. The 1st are duties which all can fulfil and which all ought to fulfil, such as duties to parents, to teachers, to society, and the state. The 2d are duties which only the fewest do fulfil or are able to fulfil,—duties to the church and religion, such as fasting, prayer, almsgiving, and celibacy. The 1st class are indispensable to comfort. The 2d class are voluntary. The moral teaching of Ambrose has throughout an ascetic tone, though less austere than the tone of the Greek

fathers. He was hostile to all amusements and all pleasures of sense, and commended the monastic life as the truest way of Christian obedience and spiritual growth. He wrote treatises on "widows," on "virginity," on penance, on the "duties of ministers," which satisfied the severe taste of Jerome much better than his seven books on "Faith and the Holy Spirit," which that harsh critic pronounced to be at once weak, fantastic, and stolen from the Greeks. His panegyrics, as we read them now, hardly justify his reputation for a wonderful oratory. They are tame and commonplace, without dignity either of thought or style. Yet Ambrose loved this form of composition; and the opportunity fell to his lot of pronouncing the funeral eulogy of the great Theodosius. Of the letters of Ambrose only a part have come down to us. They show very faithfully the character of the man, his moderation, his courage, his fidelity to duty, his practical wisdom, and his unaffected piety. He was the model of a good bishop, discreet in difficulties, ready in emergencies, happier in serving his brethren than in receiving their gifts or their homage. He magnified his office by alms and prayers and labor for souls. He was glad of his influence, without being proud of it. His word and his life were consistent. He loved the service of the altar, and his majestic presence never appeared to greater advantage than when he blessed the people from the steps of the holy place. He loved to visit the houses of the poor, and was at hand to pray at the bedside of the dying. He loved to reconcile foes and to judge in cases of dispute, and all relied upon his decision as alike wise and righteous. His views upon the relation of "right" to "expediency" seem to anticipate in some degree the modern doctrine of Paley; but he did not allow, in inferior cases, the interests of the church to make him unjust to any communicant. His musical voice charmed sorrow away, while it forbade complaint and anger. There was a divine dignity in his manner and bearing, which made him appear at once like a ruler and a saint. Arbogastes, a Roman general, making war upon the Franks of the Rhineland, was asked by one of their chiefs whom he had conquered, if he was a friend of Ambrose. From motives of policy, he gave an affirmative answer. "No wonder that you have beaten us," was the reply, "since you have the favor of a man whom the sun itself would obey, if he should command it to stand still." The most valuable legacies of Ambrose to the church were the hymns which he wrote and the improvements which he made in the method of chanting the sacred offices. Before his time, there had been no fixed method. He first reduced the chants to an orderly style and system. The more perfect notation and harmony of the Gregorian chant has superseded the Ambrosian chant in the church at large; but the churches of Milan make boast that they retain the rhythm and cadences which their great bishop left to them. They pretend

that Ambrose is the author of the "Te Deum" which is sung on the high days of festival, and there is a legend of some centuries to support their claim. Yet its origin is unquestionably far later than the 4th Christian century. Several of the hymns of Ambrose are still used in the churches of Milan. The most famous of these are the morning song, *Æternæ rerum Conditor*, the evening song, *Deus, Creator omnium*, the Christmas chant, *Veni, Redemptor gentium*, and the short hymn to the Trinity, which Luther translated and adopted. Indeed, the hymns of Ambrose gave to Luther the form and the example for many of his own lyrical compositions. These hymns of Ambrose are not to be praised for the beauty of their diction or for any artistic merit. They are rude, loose, and as far from the musical flow of later Christian rhyming as from the ancient finish of classic Latin verse. But their vigor, their fervor, their striking imagery, not less than their association with the sacred name of their author, give them a place in the veneration of the faithful above many later hymns of far greater merit. The body of Ambrose is kept in the ancient basilica of Milan which bears his name, and his shrine, if less magnificent, is hardly less sacred than the shrine of St. Charles Borromeo in the great cathedral. His feast day is observed by the Latin church on the 7th of December, the day of his ordination as bishop. But he has also the rare honor of a place among the saints of the Eastern church, and his name is classed on their registers with the names of Basil, Athanasius, and the two Gregories. No father of the church has a fame more wide, more beautiful, or more deserved. His life has been written by many biographers, Catholic and heretic, and all consent to that verdict which ranks him with the chief of saints. The kings whom he thwarted respected him. The heretics whom he silenced praised him. The priests and people of his charge were unanimous in their love. Jews and heathen came to mourn with Christians at the funeral. Scholars, courtiers, and soldiers, alike marvelled at his holiness. And the faith of multitudes in the region of his former home assigns to his spirit an enduring power of miracle, and believes in his presence as a guardian angel.

AMBROSI, PODOPIADOV, archbishop of Novgorod in Russia, born in the government of Vladimere, 1742, died at Novgorod, 1818. He held various offices in the Greek church, and, in 1775, gained the favor of the Empress Catherine II. by a sermon which he preached in her presence. Not long after this he was made a bishop, and in 1799, archbishop of the governments of St. Petersburg, Esthonia, and Finland. In 1800, he was appointed to the archiepiscopal see of Novgorod. He was released from the administration of his see in 1818, as is said, at his own request, and died in the same year. His discourses, published in 3 volumes at Moscow, 1810, show depth, and have a practical character.

AMBROSIA, the food of the gods, in Greek mythology, which was brought to Zeus by pigeons, and which conferred upon the dwellers on Olympus eternal youth and immortality. It supplied the presence of all terrestrial comestibles. Favorites of the gods are also recorded to have tasted it as a great favor, as a child does wedding cake. It was also used by the gods to anoint their body and hair; hence we read of the ambrosial locks of Zeus.

AMBROSIAN CHANT, a method of singing hymns first introduced into the Western church by Ambrose, bishop of Milan, about the year 386. Not only in various passages of the New Testament, but in the writings of Pliny the Younger, and Lucian, among pagan authors, and of Justin Martyr, who flourished in 163, Ignatius, a cotemporary of the Apostles, Origen, and others of the fathers of the church, do we find direct testimony to the propensity which the early Christians had to singing psalms and hymns, even before churches were built or their religion was established by law. No specimens of the music used by them at this remote period remain, but authorities generally concur in supposing that, except in Palestine and among Hebrew converts, the method of singing the hymns first introduced into the Christian church conformed very nearly, if not exactly, to that familiar for many ages to the temple worship of the Greeks and Romans. Of this the versification of the hymns is of itself a sufficient proof. Especially was this true of the eastern church, in which music formed a part of the religious services for many years before its introduction into that of the West. Gradually the practice grew into a system, and in the time of Constantine the Great the church of Antioch had established a regular choir and method of singing the service, which, founded on that employed by the Greeks in their worship, formed the model for all Christendom, and was continued in the church with few alterations until the time of Gregory the Great. About seventy years after this, in the reign of the Emperor Theodosius, Ambrose first ordered that psalms and hymns should be sung in this manner in the church at Milan, "that," in the words of St. Augustine, "the people might not languish and pine away with a tedious sorrow;" so that what is known as the Ambrosian chant, and is generally supposed to be the foundation of all church music, was in fact a method of singing, derived, through the Eastern church, from the Greeks, and which Ambrose had the credit of having first permanently established in the Western church. The Ambrosian chant, which was sung by the whole congregation, in union with the choir, is so little known at this day, that it is impossible to say more of its general character than that it was constructed on the ancient Greek tetrachords, and embraced the four authentic modes, the four plagal or collateral ones being added by Gregory to form what is known as the Gregorian chant. Dr. Burney admits, however,

that he was unable to distinguish any substantial difference between the two, but suggests the reason in the fact that there are no vestiges of the Ambrosian chant remaining sufficient to ascertain its peculiar character. The Ambrosian chant, and indeed all kinds of church music, were at first limited strictly to the performance of the psalms and doxologies, from an apprehension among the early fathers and bishops that heretical doctrines might creep into the services by the introduction of original hymns. Ambrose, however, in imitation of the Greek fathers, subsequently wrote several hymns, including, it has been erroneously supposed, the *Te Deum*, which he caused to be habitually sung according to the new method in his church, and St. Augustine, who was baptized there, speaks with great delight of the impression which the performance of the psalms and hymns made upon him. The design of Ambrose doubtless was to relieve the monotony of the religious services, and to render them also attractive to heretics and pagans, by inculcating simple melodies, which, although founded on rules of art, would be so familiar and easy that the whole congregation might join in the performance. The Ambrosian chant continued to be used in the services of the church until about the commencement of the 7th century, when it was superseded by the new method adopted by Pope Gregory.

AMBROSIAN LIBRARY. This library was founded in Milan (1609) by Cardinal Frederic Borromeo, archbishop of that city, and was named in honor of St. Ambrose. It is especially rich in MSS., for the collection of which learned men were sent into all parts of Europe, and into Asia. A very large number of palimpsests belong to this library; some of them are exceedingly rare and valuable, among which may be mentioned Cicero's *De Republica*, fragments of his orations, and the letters of Marcus Aurelius and Fronto. The palimpsests were mostly obtained from the monastery of Bobbio, and were discovered by the librarian, Angelo Maio, in 1814. Among the MSS. is one of Virgil, valuable for its marginal notes by Petrarch, among which is one relative to his first meeting with Laura. The library at present contains about 70,000 printed vols. and more than 15,000 MSS., beside a large collection of statuary, antiques, medals, and pictures. Among these is the cartoon of Raphael, the "School of Athens," and the studies of Leonardo da Vinci. Many of the treasures of this library were carried to France during Napoleon's campaign in Italy, and some of them have never been returned. A printing-press is connected with the library, and several professors and editors are constantly engaged in collating and translating the MSS. The building is of good proportions, and is well arranged in the interior.

AMBROSIUS, or AMBROSIANUS AURELIANUS, a general and afterward a king of the Britons toward the 5th century. By some historians

he was supposed to be the son of Constantine, the soldier elected emperor by the legions in Britain in 407, but the more credible opinion is that he was son of one of the kings elected by the Britons after the Romans abandoned the island. He was educated at the court of Aldroën, king of Armorica, whence he returned in 457 to his country with 10,000 troops to defend it against the invading Saxons. The king Vortigern having abdicated, Ambrosius became in his place sovereign over the whole nation. He governed with ability, was eminent as a military leader, and fought successfully against the Saxon invaders in the north. But in the 8th year of his reign, he lost several battles against Hengist and his son Eck. Four years after, he again combated the Saxons commanded by Ella, and won a battle against Hengist. The chronicler Godfrey of Monmouth pretends that Ambrosius died by poison given him by a Saxon physician, but it is more probable that he was slain in 508 in a great battle against Cedric, the chief of the West Saxons.

AMBROTYPE, a daguerreotype taken on glass instead of the metallic plate used by Daguerre.

AMBRYN, an island of the New Hebrides, having an active volcano. It was discovered by Bougainville (1768). It is about 50 miles in circumference, and is inhabited, its southern slope being fertile.

AMBUEHL, JOHANN LUDWIG, a German poet and dramatic author, born at Wattwyl, in the Swiss canton of St. Gall, 1750, died April 22, 1800. The son of a schoolmaster, he took his father's place when he became blind, then accepted the position of private tutor of a rich young heiress, and was, 1798, made deputy-governor of the Rheintal, an office which he held until his death.

AMBUKOL, a small town in Nubia, on the river Nile, not far from Old Dongola. It is the seat of a little commerce, and west of it lies the desert tract known as Haagbarlak, which is curious among travellers for its fossil trees in coarse sandstone.

AMBULANCE (Lat. *ambulare*, to walk or ambulate). This word is used to designate a sort of temporary and movable military hospital, formed on the field of battle for the immediate succor of the sick and wounded, and so arranged as to move from place to place with an army, or the division of an army, to be ready in all cases of emergency; the word is technically applied to covered wagons on springs, in which wounded men are removed from the field of battle to a sort of military hospital outside the camp, or to any distant and convenient position; and also to a sort of oblong wooden box on wheels, carrying 6 surgeons drawn by 2 or 4 horses, and thus moved rapidly from place to place wherever the sick or wounded men require medical or surgical assistance. The ambulance is a comparatively modern invention, due mainly to the French.

Military surgery was formerly but little understood, and those who were wounded on the field of battle were left to the care of those around them, without any selection of fit or unfit persons for the duties of surgery. The wounded soldier had to implore the aid of friends or strangers, as the case might be, or go unheeded because no one could attend to him. Still it often happened that from habit and necessity, some persons became more or less skilful in dressing wounds on the field; and, as in former times, before the invention of gunpowder, the common run of wounds were made by swords, daggers, and sharp instruments, or by dull weapons causing contusions, no great skill was necessary to dress such wounds, and hence little attention was paid to the medical or surgical requirements of the army. But after the invention of gunpowder and the change in military tactics which followed, gunshot wounds were often very serious and complicated, requiring more surgical skill to manage them, and prompt attention to prevent them from endangering the life of the soldier. For want of means and surgeons, the wounded were abandoned often to the casual sympathies and succor of the inhabitants of the country where the battle had been fought. Nor do we find any trace of a regularly organized system of military hospitals, moving with the army, until the time of Henry IV. of France; and even then the great military surgeon, Ambroise Paré, held no rank in the army. The authority which he acquired amongst his countrymen was due entirely to his own merit and their acknowledgment of his superior genius, in the functions he had undertaken. In the time of Louis XIII., however, a chief surgeon (*chirurgien major*), holding military rank, was attached to each regiment of the French army, and permanent as well as temporary military hospitals were established. The movable ambulances were at first but rudely organized, consisting of a cumbrous depot of surgical and medical appliances, kept with the baggage at a distance from the field of battle, and almost useless in regard to any prompt assistance that would alone be efficacious. More recently, however, great improvements have been made in this department, and a more efficient system is organized in all the more advanced nations of the civilized world. It is now well understood that an army entering on a distant or hazardous campaign, should be able to provide for all its wants with ease, or have within its own immediate resources all that it requires for its health and safety. In accordance with these views, two kinds of ambulances have been organized; one called fixed or general, where every thing is on a larger scale, as in a reserved centre of supplies; the other movable and light, easily displaced and taken to whatever spot may call for special aid. The larger and reserved ambulances remain with the heavy baggage at some distance from the field of battle; the lighter and more strictly movable

ambulance accompanies the soldiers on the field, and contains all that is immediately necessary for rendering medical and surgical assistance to the wounded men. Each of these ambulances consists of 7 surgeons with an oblong case on wheels drawn by 4 horses, and easily moved to any point required. A surgeon on horseback leads the group, and 6 assistant-surgeons seated on the oblong box or case drive wherever their assistance is required. Baron Larrey, surgeon-in-chief of the French army, has proposed a better plan than this, which will perhaps be soon adopted. All the surgeons are to be on horseback, having in their saddlebags and valise abundant means for dressing wounds, such as lint and plaster, bandages, appliances, &c., and, in a special pocket by their side, the necessary instruments for amputation and other surgical operations. Behind them, and at their command, follow small carriages, each drawn by two horses, and containing such materials as they require, as well as beds and proper apparatus for transporting one or two wounded men from the battle-field to more convenient places of repose. These small divisions of the ambulance can easily separate and form again into important groups as occasion may suggest, and thus add the advantages of rapid motion to those of minute division, which are often very precious in cases of emergency. In hilly countries these advantages are very great, for heavy carriages are often useless in such positions.

AMEILHON, HUBERT PASCAL, a French scholar, born in Paris, Aug. 5, 1780, died there Nov. 25, 1811. In 1798, being a devoted partisan of the revolution, he was appointed by the convention a member of the commission for national monuments. For 52 years he was librarian of the arsenal. He put the library in order, and saved from destruction 800,000 volumes confiscated in monasteries and from private individuals. The ancients, their geography, archæology, and scientific notions, formed the principal subjects of his studies and of his writings.

AMELAND, an island in the North sea, 4 miles from the mainland, forming a part of the Dutch province of Friesland. It is in 53° 27' N. lat. and 5° 40' E. long., 12 miles in length, and 2 in width. It has about 3,300 inhabitants.

AMELIA, a county in S. E. Virginia, was organized in 1784. It is drained by the branches of the Appomattox river, which almost encircles it, and intersected by the Richmond and Danville railroad. Its area is 800 square miles. The surface is somewhat diversified. The productions in 1850 were, 250,251 bushels of corn, 109,960 of wheat, 70,075 of oats, 1,786,788 lbs. of tobacco, and 56,790 lbs. of butter. There were a number of factories and mills, 14 churches, and 145 pupils attending public schools. Value of real estate in 1856, \$2,189,064. Population in 1850, 2,770, of whom 2,951 were free, and 8,819 slaves. Capital, Amelia Court House.

AMELIA, a town of the Papal states. It is a bishop's see, having a cathedral, 3 churches,

and some convents. The city is the ancient Ameria, one of the oldest of Umbria, and contains a population of 5,500. Roscius, the celebrated Roman actor, was born here.

AMELIA ISLAND, is situated opposite Nassau county, off the N. E. coast of Florida. A channel from 2 to 4 miles wide, separates it from the mainland. It has an area of 64 square miles; its soil is generally very fertile.

AMELOT DE LA HOUSAYE, ABRAHAM NICOLAS, a French author, born at Orleans in 1684, died at Paris in 1706. After his return from Venice, whither he went in 1669 as secretary of an embassy, he devoted himself to history, politics, and philosophy, and won some reputation as an author. His principal work was a "History of the Government of Venice," beside which he wrote several volumes of miscellaneous memoirs, and translated 4 books of Tacitus, Machiavelli's "Prince," in the notes to which he spoke of his author as a great satirist, and Father Paul's "History of the Council of Trent," &c. The translation of Father Paul was attacked by the partisans of the pope's unlimited authority, who presented 8 memorials for its suppression, while it was defended and eulogized by those who were in favor of the liberty of the Gallican church. The "History of Venice" raised a great outcry in that city, and through the intervention of the Venetian senate, Amelot was thrown into the bastille.

AMELOTTE, DENIS, a French writer, born in Saintes, in 1606. His life of Charles of Gondren, second superior of the fathers of the oratory, a congregation of priests founded by Philip of Neri, contained some strictures on the abbot of St. Cyran, which brought him into collision with the Port Royalists. His influence with the chancellor prevented the publication of their translation of the New Testament, and in the years 1666, 1667, and 1668, a translation of his own in four volumes, octavo, with annotations, was published, which has been charged with gross inaccuracy by F. Simon. He died in 1678 in the congregation of the oratory, into which he had been admitted in 1650.

AMEN, a Hebrew word signifying true, verily, or more commonly, perhaps, so be it, of frequent occurrence in the Scriptures. Like *alleluia* or *hosannah*, it has been used in the service of the church from remote times, and usually forms the conclusion of hymns or anthems.

AMENDE HONORABLE, in modern parlance, implies a public apology, or recantation for an offence given either in word or deed. Anciently it was a penalty not of a pecuniary character, and signifying degradation or dishonor in the party suffering it. An offender was in some cases obliged to make public confession of his crime, and to appear publicly in a shirt with a rope round his neck. Analogous to this was the public renunciation of heresies; or the public penance directed as an expiation for irregular life, or in case of scandalous defamation of private character.

AMENDMENT, in law, is the alteration of the record, or of any pleadings in a civil or criminal matter. In ancient times, all proceedings in English common law were oral. Subsequently they were put upon parchment and were recorded, and previous to Edward I., questions having arisen as to the right to amend, a statute was passed authorizing them to make certain amendments. The ingenuity of lawyers and the conservatism of judges in favor of technicalities have always made the question of amendments a great annoyance to suitors. For if after a verdict any error, technical or essential, was discovered on the record, a writ of error might be brought, and the whole set aside. Various statutes of amendments and jeofails (from the French *j'ai failli*) were passed, to remedy these defects. But the rights of parties were always in danger, from the excessive adherence to form in English law proceedings. In 1852-3 new rules were made, with the sanction of parliament, remodeling the law of amendments in civil actions, and permitting amendments at the discretion of the court, and upon such terms, as to costs, as a judge thinks fit, in all cases where substantial justice is likely to be disturbed by the error. In criminal law, some failures of justice in cases of a particularly flagrant character having taken place by reason of the inability of the court to correct indictments and records in technical matters, an act has been passed during the reign of the present queen, authorizing amendments both before and after verdict.—

AMENDMENT, when used in legislation, means any change which may be moved or proposed to a motion or to the original draught of a bill. According to the existing parliamentary practice, either house of a legislature has the right to make amendments to bills under consideration; but they must receive the sanction of both houses before they can become laws. No bill, however, can be amended before it has been read twice, and when such an amendment is passed in a branch of the legislature in which the bill itself did not originate, the whole must be transmitted to the other house for approval. In the case of a disagreement between the two houses, a committee of conference is appointed, to reconcile their differences. An amendment may apply to the entire contents of a bill, in which case it is common to move that all the words after the enacting clause be stricken out, and the following (repeating what is desired) substituted. A person who has spoken upon the original bill may speak upon any amendment. When an amendment has been proposed to any question, it is customary to put the vote on the amendment first, and then on the main question. But a motion to amend cannot be put after the previous question has been moved, unless the motion for the latter is withdrawn.

AMENI, one of the Laccadive Islands in the Indian ocean, in lat. 10° 6' N. long. 72° 41' E. It is circular in form, and measures about 4 miles in circumference.

AMENOPHIS (*Amenothph*), a name borne by 8 Egyptian kings, belonging to the 19th dynasty, which commenced about B. C. 1525. I. The 17th dynasty, according to Manetho, consisted of the Hyksos or Shepherds, who had overrun and subjugated Egypt about B. C. 2100. They probably came from Assyria. These shepherd kings destroyed most of the monuments and other public works of Egypt, and must therefore have greatly interrupted the Arabian carrying trade of the country, and so deranged its financial prosperity. They reigned about 511 years, according to Josephus. The accession of Amenophis I. to the throne was the era of the overthrow of the shepherd kings, and the complete establishment of the Diospolitan line, which had begun to recover its power under his father Amasis or Aahmes. The reign of Amenophis is signalized in Egyptian history for his vigorous and successful efforts to restore the financial prosperity and monumental renown of the kingdom, wantonly destroyed by the shepherd kings. He reigned about 80 years. II. The successor of Thothmes II., of whom little is known. His reign was short. III. A grandson of Amenophis II., and the most important of the Amenophis. He devoted himself, during a reign of more than 40 years, to the improvement of his kingdom. Ancient Egypt was never so prosperous, nor so extensive, as under his administration. It extended into Syria as far as the western bank of the Euphrates, and south, embracing a greater part of Ethiopia. Monuments of the greatness of Amenophis III. exist all over Egypt.

AMENTA, NICOLÒ, an Italian lawyer, born in Naples in 1659, died July 21, 1719. For 14 years of his childhood he was blind, and remained shut up in a dark room. Having recovered his sight, he devoted himself to the study of the law, and became prominent in that profession. He is considered as an elegant and correct writer, and left various literary productions, such as comedies, satires, biographies, &c., beside his professional publications.

AMERBACH, JOHANN, a native of Swabia, a learned man and a printer. The Gothic and Italic letter was used in printing until his day, 1500. He urged the use of the Roman text. He published the works of St. Ambrose, 1492, and St. Augustine, 1506. His edition of St. Augustine was attended with great labor and expense, and owing to the imperfections of the collated MSS., is of little critical value. He had an intense desire to publish the works of Jerome, also, and to this end, had his three sons thoroughly educated in Hebrew, Greek, and Latin. Amerbach never lived to complete the work, but dying in 1515, left it in charge of his sons. It was, 10 years afterward, issued by Froben.

AMERGIN, I. MAC-AMALGAD or AMALGADH, an Irish poet, who is said to have lived in the 6th century after Christ, at the court of Dermot. Amergin has left *Dean Seanchas* (His-

tory of the remarkable places of Ireland). II. An Irish writer of the latter half of the 7th century. He lived in the time of O'Finnegan, king of Munster, who reigned, says O'Reilly, in the 7th century of the Christian era. He wrote a treatise upon the privileges and punishments of the different classes that made up Irish social economy. A copy of this work is among the manuscripts of Trinity College, Dublin. III. A personage of Hiberno-Celtic mythology, who came to Ireland many centuries before Christ. He and his brothers were the sons of Mileagh, answering to the Greek Hellen, from whom came the term Milesian. Like Hellen, Mileagh had 8 sons, Heber, Heremon, and Amergin, the Æolus, Ion, and Xuthus of Ireland. He became arch-druid, while his brothers partitioned Ireland between themselves.

AMERICA, one of the great natural divisions of the globe, the discovery of which, at a late period in the history of the world, imparted novel features to civilization, offered fresh fields for arms, and was felt in its influence alike upon the politics, the religion, and the philosophy of the race, extends from Point Barrow, in lat. $71^{\circ} 24' N.$ to Cape Froward, on the straits of Magellan, in lat. $53^{\circ} 58' 7'' S.$ In this computation we do not include those regions at the north which the intrepidity of the Arctic explorer has noted upon charts, but which serve rather to attest the inability of human will than to add to the economy of mankind; nor is the barren archipelago of Terra del Fuego considered, extending at the southern extremity of the continent from 2° to 8° further. This immense tract, 10,500 English miles in length, embracing every variety of climate, soil, race, natural history, and geological formation, and exhibiting all the phenomena known to physical science, is estimated by intelligent writers to contain from 14,622,000 to 17,808,000 square miles, the latter being the estimate of Hassel, and the former that of Balbi, while Berghaus, excluding the surface of insular territory which he reckons at about 98,660 square miles, makes the continental area to be about 14,219,987 square miles. In considering this statement, however, it must be remembered that Greenland, which is connected by geographers with America, and which has been traced to the 78th degree of north latitude, is probably prolonged much further into the polar circle, while it is reasonably supposed that a great archipelago of islands occupies the space between the northern coast of the continent and the 80th parallel. This tract, known as America, is naturally divided into two peninsulas, connected by the isthmus of Darien, which at its narrowest part is 28 miles in breadth, its general width being about 40 miles. These divisions are respectively called North and South America, while the title of Central America has been assigned to a strip of land between about 7° and 18° of north latitude. These divisions being considered, the extent of the continent is stated by an able geographer as follows:

	English square miles
North America,	7,400,000
South America,	6,500,000
Islands,	150,000
Greenland and the islands connected with it, lying north of Hudson's straits, may be estimated at	900,000
	14,950,000

This estimate is larger than several of those already cited, including, as it does, the conjectured area of the islands connected with Greenland. Credited as it must mainly be, it shows that the American continent is fully 4 times as large as Europe, about $\frac{1}{2}$ larger than Africa, and almost $\frac{1}{2}$ less than Asia, including Australia and Polynesia. It thus constitutes about $\frac{1}{3}$ of the dry land upon the surface of the globe. Its greatest breadth, south of the equator, is between Cape St. Roque in Brazil, and Cape Parina in Peru, between lat. 4° and $7^{\circ} S.$, where it is 3,250 miles wide. Its greatest breadth north of the equator is between Cape Canso in Nova Scotia, near the parallel of 45° , and Cape Lookout in Oregon, where it is 3,100 miles in breadth.—The physical features of this continent are remarkable and interesting. Of its capacity for cultivation it may be stated that a space, in the northern extremity above the latitude of 61° , extending from the head of Cook's Inlet on the west side, to the straits of Bellisle on the east, including over 1,500,000 of square miles, is condemned to perpetual sterility. At the southern extremity, about 200 miles north of the straits of Magellan are in the same condition. These, with the summits of the Andes, are the only parts of the continent incapable of cultivation. The great chain of the Andes, connected by modern geographers with the Mexican Cordilleras and the Rocky Mountains, runs nearly north and south, extending in an unbroken line from the straits of Magellan to Point Barrow, on the shores of the Arctic, in the latitude of 70° , over a space equal to 10,000 miles in length, being $\frac{1}{3}$ of the circumference of the globe. The maximum of its height is attained between the tropics, although its higher summits reach the maximum of perpetual snow throughout its entire line. In the science of geography, as systematized by modern savants, the Andes, with their great length, their mineral wealth, their numerous and immense volcanoes, are considered as a link, connecting into one continent the two great peninsulas which constitute America.—For the sake of convenience, it is our intention to consider North, Central, and South America separately.—NORTH AMERICA, exclusive of Central America, is contained between the 16th degree of N. latitude and the Arctic ocean, being bounded on the north by the Arctic ocean, on the east by the Atlantic and the gulf of Mexico, on the south by the gulf of Mexico and Central America, and on the west by the Pacific ocean. Its length is, from Hudson's straits to the Florida channel, about 4,800 miles, and from thence to the Panama coast about 4,500 miles. Upon the Pacific side, including the coasts of California,

the whole length has been computed at 10,500 miles. If the length of the north and north-east shores be estimated at 8,000 miles, the entire coast-line of the continent will be about 22,800 miles. The area is differently stated. We have already given it upon responsible authority at 7,400,000 square miles, including that portion now called Central America, while the superintendent of the last United States census, Mr. J. D. B. A. De Bow, makes the following estimate:

	Square miles.
British America,	3,050,398
United States,	3,204,965
Mexico,	1,083,384
Russian America,	394,000
Danish America,	884,000
Central America,	208,551
	<hr/> 8,878,648

North America, with its isles, may be divided politically as follows:—The independent states are, I. The United States; II. Mexico; III. The island of Hayti. The colonies are, I. Greenland, a dependency of Denmark; II. Russian America, comprising the north-west angle of the continent, as far as the 141st meridian west from London, with a narrow strip of coast reaching as far south as lat. 55° 30' N., and covering a surface of about 500,000 square miles. III. The British dependencies, which, upon the continent, are bounded upon the south by the territories of the United States, on the north by the Polar sea, on the west by the Russian territories, containing an area of 2,600,000 square miles. Those districts in which alone civilization has commenced or has advanced, may be stated as follows:—

	Area in sq. miles.	Population.
Lower Canada,	950,000	904,000
Upper Canada,	105,000	952,000
New Brunswick,	27,000	211,478
Nova Scotia, }	13,748	276,117
Cape Breton, }		
Prince Edward's island,	2,134	62,848
Newfoundland,	26,918	100,000
Vancouver's island,	16,000	11,468

To these must be added the insular colonies of Jamaica, Antigua, Barbadoes, Dominica, Grenada, Montserrat, Nevis, St. Kitts, St. Lucia, St. Vincent, Tobago, Tortola, Trinidad, Bahamas, and Bermuda, and (for convenience) the continental colonies of Demerara, Berbice, and Belize, containing in 1851 a population of 972,000, four-fifths of whom were probably persons of color. IV. The Danish West Indian colonies of Santa Cruz, St. Thomas, and St. John, containing in 1855 a population of 39,614, of which five-sixths are colored. V. The Swedish colony of St. Bartholomew, another of the lesser Antilles, containing a population of 18,000. VI. The French West Indian colonies of Martinique, Guadeloupe, and other smaller islands, and the continental colony of Guiana, in South America, with a population of 277,000. VII. The Dutch colonies upon the continent of Surinam and the islands of Curaçoa, St. Eustatius, and St. Martin, with a population in 1858 of 90,581, of which up to 1857 three-fourths were slaves. Spain alone of

the 7 great European powers distinguished for colonial enterprise, and herself the pioneer in extending civilization, retains no footing upon the continent of which she was one of the earliest discoverers. Of her vast western possessions the islands of Cuba and Porto Rico alone remain. The population of the first is 898,752; of the latter, 288,000, of which 42 per cent. are whites.—Of the independent states and provinces above indicated, this may be considered the proper place for whatever it may be necessary to say within the limits of this article.—The Danish province of Greenland is inhabited principally by savages, containing in 1851 only 250 Europeans. In that part of America held by Russia only a few trading ports have been established, of which New Archangel, or Sitka, in lat. 57° 30' N. and long. 135° 18' W., is the principal. Of the British continental possessions we shall speak in other articles.—The United States of America, which are already the dominant power upon the continent, and whose influence will not soon be diminished, although colonized a century later than Spanish America, have far outstripped it in progress. This republic is bounded on the N. by British America, Lakes Superior, Huron, St. Clair, Ontario, and Erie intervening, with the river St. Lawrence; on the E. and N. E. by New Brunswick, and the Atlantic ocean; on the S. by the gulf of Mexico, being partly separated by the Rio Grande del Norte from the Republic of Mexico; and on the W. by the Pacific ocean. It consists of 31 sovereign states united by a federal compact, of 8 territories, and of the district of Columbia, embracing an area of 2,986,166 square miles. Their vast extent furnishes a field for every description of agriculture, whether temperate or tropical, and for almost every branch of human industry. It produces not only maize, wheat, and other cereals in abundance, but also sugar, cotton, and tobacco, while in the useful arts, in manufactures, railroads, canals, and shipping, the republic is already upon terms of equality with the oldest European states. The population of the United States in 1850 was, by census, 23,191,876, showing an increase in 50 years of 17,885,951. The government is a pure representative democracy. The annexation of California in 1847 was the most important of the many territorial acquisitions made by the republic, the discovery of gold in that state having nearly doubled the annual supply of precious metals from America.—Mexico, a country of vast and yet undeveloped capabilities, embraced, previous to the war with the United States, an area of 1,600,000 square miles, which has been reduced by cession to about 1,000,000. Rich in precious metals, capable of producing every great article of tropical and of temperate production, and with a climate remarkable for salubrity, its prosperity has been retarded and its power diminished by the unfaithfulness of its rulers, and the ignorance of its people. Under more auspicious circumstances, and

with a more energetic population, it is easy to believe that certain physical disadvantages, the smallness of her rivers, the lack of ports upon the Atlantic side, and the mountainous character of the country, would have been overcome. The population of Mexico in 1827 estimated at 8,000,000, was officially stated in 1854 at 7,858,394. The government is professedly republican, but continual revolutions, which still continue, have more or less modified its character.—The mountains of North America may next claim our attention. The Rocky mountains, the most important and interesting, are properly considered as a continuation of the great Andes chain. The branch of this, which divides the seas at the isthmus of Panama, is, at the highest point only 800 feet above the sea. On the S. W. side of the isthmus are found the most considerable elevations, and here too within a limited space are 27 volcanoes. The Mexican mountains, from Puebla to Durango, spread into tableland, from 5,000 to 9,000 feet in height, and from 100 to 800 miles in breadth, upon which, at the 19th parallel in a line running E. and W., 5 volcanoes are distributed. Near the tropic, the Mexican Cordilleras divide into 8 parts, the first running parallel to the eastern coast for a distance of 80 or 40 leagues, and terminating in New Leon; the second, proceeding in a north-western direction, and sinking gradually as it approaches the Californian gulf and terminating at Sonora; and the third or central Cordillera traversing Durango and New Mexico, forming the main branch of the Rocky mountains, terminating at the Arctic ocean, in about 140° W. long. A lower chain, from the southern point of California, skirts the coast to the volcano of Mt. St. Elias, in lat. 60°, forming with several intermediate chains a plateau from 200 to 800 miles in breadth. The elevation of many of the Rocky mountains is very great, several of the summits being within the regions of perpetual snow. The highest peaks are those of Popocatepetl and Orizaba, in Mexico, the former being 17,380 ft. and the latter 17,880 ft. Fremont's peak, in the U. States, is 13,570 ft., Pike's peak 11,497 ft., and Mt. Brown and Mt. Hooker, in British America, 15,990 and 15,700 ft. respectively. The Appalachian chain on the Atlantic side of the continent, rising in the extreme north-eastern section of the United States, extends nearly parallel with the coast at a distance of from 100 to nearly 800 miles, to Alabama, the greatest height being at Mt. Clingman, in North Carolina, which is 6,941 ft.; the next highest being Mount Mitchell, in the same state, which is 6,732 ft. The mean elevation is about 2,400 ft., the chain comprising several ranges nearly parallel. Between these and the Rocky mountains stretches a vast plain, including the great lakes, the mighty rivers, and the most fertile regions of the continent.—The geological and mineralogical features of North America may here be briefly alluded to. The geological forma-

tions develop themselves, upon a line run westward from Delaware bay (80°) across the continent in the following order:—1. Tertiary and cretaceous strata on the shore of the Atlantic. 2. Gneiss underlying these strata, exhibited on the eastern slope of the Alleghanies, covered at points by new red sand-stone. 3. Palaeozoic rocks, upon which rest three great coal fields. Silurian, carboniferous, and secondary rocks, extend to the base of the Rocky mountains, where the crystalline schists again present themselves, disturbed in Oregon by eruptive rocks of many varieties, including traps, porphyries, serpentines, and cellular lavas. It is observed that where the crystalline and palaeozoic strata have been penetrated by masses of igneous rock, the precious metals are usually found. The most important minerals of North America are gold, silver, copper, iron, lead, and coal. The first two are found in the greatest abundance in California, Mexico, and New Mexico, although gold in considerable quantities is found in the Alleghany mountains from Maryland to Alabama. The amount of gold and silver annually obtained in Mexico from 1810 to 1825 was computed at about 10,000,000 of dollars, but it is now very much less, the political agitations of the country being especially unfavorable to this branch of industry. The whole amount of gold and silver coined from 1835 to 1845 inclusive, is stated at \$2,465,275,943. The amount of gold received at the United States mint from California up to 1856, was \$596,162,061. The Alleghany mines from 1828 to 1854, had sent to the United States mint about \$17,000,000. Copper in large quantities is found in Mexico, and upon the shores of Lake Superior, where great masses of pure ore are taken from the native bed. Quicksilver is found in Mexico and California, and lead in great abundance on the banks of the Mississippi, in lat. 41° and 44°, as 54,000,000 lbs. have been obtained in a single year from this point. The coal mines of North America are immense and inexhaustible, affording an evident source of national wealth and of social comfort. In the United States alone they cover an area of 133,000 square miles, and collectively they embrace an area greater than the surface of Great Britain. Extensive beds are found in New Brunswick, Nova Scotia, and Vancouver's Island. Both bituminous and anthracite coals are obtained, the former, however, being the most abundant. The North American continent is extremely rich in iron and zinc; cobalt, arsenic, antimony, and other metals, are also found.—The facilities for inland and coastwise navigation of North America are conspicuous. Of its rivers, the Mississippi with its tributaries is the most important. This is navigable from the sea, for boats, to the falls of its principal branch, the Missouri, 1,253 miles from the Mexican gulf, in a direct line, or 3,900 by the stream, the entire course being 4,850 miles. Its tributaries, the Arkansas and Red rivers from the west,

and the Ohio from the east, have courses of from 1,000 to 2,500 miles each, these in turn having many tributary streams. The area of the basin of the Mississippi to the source of the Missouri has been stated at 1,350,000 square miles. The river St. Lawrence from the head of the St. Louis, an important affluent of Lake Superior, is 2,200 miles in length, with an area of basin of 600,000 square miles. The Columbia, or Oregon river, emptying into the Pacific, is about 1,300 miles in length; the Colorado, emptying into the gulf of California, is about 1,200; and the Rio Grande, 1,800. These immense streams, the cheap highways of the continent, wonderful as has been their influence already, are destined incalculably to increase the power, wealth, and greatness of the western world. Upon the eastern coast of North America we have also Baffin's bay, which separates British America from Greenland; Hudson's bay, a great inland sea, opening by three channels into the Atlantic; the gulf of St. Lawrence; the bays of Massachusetts and Fundy, Delaware and Chesapeake; the gulf of Mexico and the bay of Honduras. Upon the west are the gulf of California, Queen Charlotte's sound, and other indentations of less importance. The great fresh water lakes of North America are Superior, covering 32,000 square miles; Michigan, 20,000; Huron, 20,400; Erie, 8,520; and Ontario, 5,400. These are between lat. 40° and 49° N. and long. 76° and 98° W., all connected by straits or channels, and all, through the St. Lawrence, connecting with the Atlantic ocean.—The islands which are geographically connected with the North American continent are exceedingly numerous, and can receive but cursory notice. We have already mentioned the West Indian islands in our notice of the political divisions of the continent. These, however, may be more succinctly divided into: I. the Great Antilles, including Cuba, Hayti, Jamaica, and Porto Rico; II. the Small Antilles, extending in a semicircle, from Porto Rico to the coast of Guiana, including Barbadoes, and 80 other islands; III. the Bahama Isles, about 500 in number, and most of them uninhabited. The entire area of all these is estimated at 95,000 square miles. Near the mouth of the St. Lawrence are the islands of Newfoundland, Cape Breton, and Prince Edward, the first being the largest and most important. Upon the Pacific coast, the largest islands west of British America, are Queen Charlotte's, King George III.'s, and Vancouver's, and on the coast of Russian America, the Aleutian islands.—The climate of North America has afforded a curious and interesting subject for scientific research and speculation. Without entering at length into these, we may briefly state such results as have been arrived at. The well-marked varieties of climate in the region lying between the parallels of 80° and 50°, are three—that of the east coast, that of the west coast, and that of the basin of the Mississippi. From Georgia to Lower Canada,

the mean temperature of the year is lower than in Europe by 9° at the latitude of 40°, and by 12½° at the latitude of 50°. The summer is hotter and the winter is colder than in Europe. The changes are more rapid as we proceed from south to north, a degree of latitude in the middle of the temperate zone producing a decrease of annual temperature of 1.18° in Europe, and of 1.57° in America. But according to modern theories, the advantage of the old world is apparent only, since it is the west coast of the new continent which ought to, and which does exhibit the climate of Europe, and since at Peking the winters are colder and the summers are warmer than at Philadelphia, which is in the same latitude. There are good reasons for believing that the west coast of North America has a climate nearly as mild and equable as the west coast of Europe. The climate of the basin of the Mississippi has considerable affinity to that of the east coast, exhibiting, however, in still greater excess those extremes of temperature which distinguish the eastern coast of North America from the western coast of Europe. In the region extending from the 50th parallel to the polar seas, the intensity of cold is scarcely equalled by any thing known under the same parallels in northern Asia. Although vegetation, under modified forms, and favorable circumstances, is found in latitude 65°, it will not probably be found practicable to extend civilization beyond the 60th parallel, and hardly beyond the 50th. In southern Mexico the usual characteristics of the torrid zone prevail, while the table-lands, though subject to drought, are temperate and delightful in their climates.—The zoology of North America affords numerous specimens, lacking, however, the larger kinds of vertebrated animals, and most of those animals distinguished by ferocity, of which the polar and grizzly bears are the most remarkable found upon this continent. The *quadrumanæ* (apes) are entirely confined to the southern extremity of this continent. Of the *carnivora*, we find among the most prominent the grizzly, white, black, Cordillera, and barren-ground bears, the common dog, gray, maned, and Mexican wolves, the Arctic, black, Virginia, silvery, gray, bald, and perhaps other varieties of foxes, the panther, lynx, and wild cat, with the hedge-hog, shrew, shrew-mole, raccoon, badger, wolverine, weasel, skunk, otter, seal, and walrus. Of the *marsupialia*, we find every variety of the opossum. Of the *rodentia*, we note the squirrel, marmot, mouse, beaver, porcupine, and hare. Of the *pachydermata*, the boar, and horse (both imported). Of the *ruminantia*, many varieties of deer, of which the most noteworthy are the moose, or elk deer, and the reindeer, the mountain sheep, and goat, the bison, musk ox, and common ox (the last of which is imported), with the antelope, and the goat. Among the *cetacea*, we notice the northern manati, the broad-nosed manati, the several varieties of the dolphin, the sperm and blunt-

headed cachelot, and the several varieties of the Arctic whale. Many families of birds are represented in North America, those already described amounting to between 560 and 600, including some genera wholly peculiar to the continent, such as the humming-bird, toucan, and wild turkey. A more extensive enumeration of these would be inappropriate to the present article. Of serpents, America affords an unusual variety, although most of them are innocuous, both peninsulas containing 80 harmless to 12 or 13 varieties of venomous snakes. Of these, the most dangerous is the rattlesnake, the bite of which is fatal unless immediate remedies are resorted to. Of the *testudinata* we have almost every variety; of the *saurians*, the cayman, and of the *ranidae*, the frog and toad. The varieties of fish in the North American waters are very numerous, including the salmon, sturgeon, white-fish, mackerel, shad, bass, cod, herring, halibut, trout, perch, pike, and many others. It may be worthy of notice, that 7 European animals have been domesticated in America. These are the cow, horse, ass, hog, sheep, goat, and dog, all of them exhibiting an increase which has far outstripped that of native quadrupeds. Of these, the hog, the cow, and the horse, have become wild, while the ass, the sheep, the goat, and the dog, show little if any tendency to withdraw from the protection of man. The climate, however, has produced remarkable changes in most of these species.—The vegetable productions of North America are very numerous. Maize or Indian corn is the only farinaceous plant peculiar to the new world. Tobacco and the potato are also indigenous. In many regions, wheat, barley, oats, peas, and rice are cultivated, as well as oranges, peaches, lemons, and apples. Sugar and cotton are among the most important staples. The cultivation of the vine has recently received much attention in the western part of the United States, and the experiment has been not only encouraging but profitable. The indigenous vine is found to yield a wine of a quality by no means contemptible.—The population of North America has never been computed with accuracy. Of the aboriginal race, 8,000,000 are supposed still to remain in North and Central America, including the Mestizoes (or white and Indian), while in the West Indies, and the United States, about 5,000,000 of the African race are found, most of them in a condition of slavery. The entire population of North America in 1854 was estimated at above 40,000,000. The whites in the United States in 1850 were about 19,500,000, and in British America 2,500,000. As they are supposed to increase at the rate of 3 per cent. annually, it is estimated that in the year 1900, the white population of the continent, of pure European descent, will be 88,000,000, and in the year 1925, not less than 176,000,000. Further computations, which may, to a certain degree, be considered fanciful, have fixed this population at 200,000,-

000 in the year 2095. But there can be but little doubt that, a century hence, the European race will be as entirely predominant in numbers as it is in political power.—Of the races of men inhabiting America previous to its discovery, much has been written, and but little accurately determined. Various systems have been advanced. One writer has placed all the aboriginal inhabitants of the continent under one class, excepting only the Esquimaux. Another divides them into 4 races or into 5, including the Esquimaux, viz., I. the Columbian, comprehending the tribes formerly inhabiting the Alleghany mountains, Canada, Florida, the eastern coast of Mexico, and Central America, with the Caribs of the West India islands and Guiana; II. the American, embracing the tribes occupying the other parts of South America, east of the Andes, excluding the Patagonians; III. the Patagonian race, inhabiting the southern extremity of the continent; IV. the Neptunean, inhabiting the western coasts of both divisions of the continent, from California to Cape Horn, including the Mexicans and Peruvians. The best authorities, however, agree upon a mutual resemblance and family character among American nations. Humboldt declares that the Indians of New Spain bear a general resemblance to those of Canada, Florida, Peru, and Brazil. He thinks them all to be descended from the same stock, in spite of the great diversity of language. The form of the skull, bearing a strong resemblance to the Mongol type, distinguishes the American race. A receding forehead, prominent cheek-bones, a flat occiput, and large and deep orbits, are among its characteristics. To these may be added the aquiline and flat nose, a thin and light skull, and teeth less prominent than those of the African race. The color is of a brownish yellow, or copper, although upon the north-west coast, from latitude 48° to 60°, tribes were found with the white and red of the Caucasian race. Within the tropics, several tribes have a complexion almost fair, with blue eyes, and auburn hair. Those nations whose color most nearly approaches to black, are found within the temperate zone. But of all the American tribes, it has been observed that the extremes of color, the white of northern Europe, and the black of Ethiopia, are unknown among them, and that their color inclines less to yellow, and more to reddish brown. Long black hair is common to all. The beard is deficient. The languages of the various races were exceedingly numerous, 428 having been ascertained which were spoken in America at a day not very distant, of which 211 belonged to North, 44 to Central, and 168 to South America. Vater places the number of languages spoken in America at 500. All these have an analogy of structure, into the peculiarities of which it is impossible to enter in this article.—Of the most remarkable nations of Indians formerly or at present inhabiting America, we may first notice the Esquimaux, a stunted

race, occupying all the northern Archipelago, the shores of Hudson's and Baffin's bay, of Labrador, and of Russian America. Of these it has been asserted that they are the only American race whose Asiatic origin is indisputable. The Indians of the east coast, who occupied both sides of the Alleghany mountains, from the gulf of Mexico to Canada and New Brunswick, consisted of the Delaware tribes, including the Ottogamies, Shawnees, Narragansets, Chippewas, Knisteneaux, and Delawares, with other nations, about 80 or 40 in number, between the Mississippi and the Atlantic, and as far north as Hudson's bay, all speaking dialects of the same language. Among these tribes a tradition was preserved that many centuries before they had migrated from the west, and had expelled the Alleghanies, the former occupants of the eastern shores. Upon the south side of the great lakes were the Mohawks, Oneidas, Hurons, and Senecas, called sometimes the "Five Nations," and sometimes the "Six Nations," but embracing 15 tribes, all speaking dialects of a common language. The Florida Indians included the Creeks, Seminoles, Choctaws, Chickasaws, Natches, and Mobiles. To the Iroquois, in consequence of a similarity of language, have been referred the Osages, Missouris, Kansas, and other tribes beyond the Mississippi. Much has been written of the North American Indian, and while his lofty and defiant character and his unhappy fate have inspired the poet, his habits, tastes, and sentiments, have had a charm for the philosopher. Of all savages, the North American aborigines have been supposed to exhibit the nearest approximation to the arts and amenities of civilization. It is impossible to yield implicitly to the exaggerations of romance, and those traits which the license of song has assumed, will in many instances disappear before the colder scrutiny of scientific investigation. In that great characteristic of all ancient and modern refinement, in which indeed other barbarians have not been found deficient, in the kindly, decorous, and considerate treatment of women, the Indian was signally wanting. Brave as he might be in battle, skilful as he might be in the chase, stoical as he might be under the most cruel torture, he yet imposed upon the wife of his bosom and the mother of his children services the most menial, and bestowed censure and blows upon her oftener than acts of assistance and words of affection. Tried by this test, which the experience of the world has established as a just one, the American Indian sinks below the level of many races heretofore and still regarded with indifference. On the other hand, his gloomy and stoical nature, his contempt of the avocations of peace, his bravery in battle, his patient biding of revenge, his freedom from idolatry, his trust in the Great and Good Spirit, the touching fact that, once master of the continent, he has been driven within a comparatively short period of time from his hunting-grounds, and from fields made illustrious in his simple annals,—have all awakened for him an unusual sympathy, and

secured for him a place, perhaps undeserved, among the races. He whose eye moistens at legends the barbarity of which is softened in elegiac verse, might find an unexpected consolation could he behold the squalid wigwam, the brutal and hideous war dance, the pregnant woman toiling in the cornfield, or digging for shell-fish upon the inhospitable shore, or compelled with the weight of her maternity to travel leagues of wilderness, or even after an hour of agony to follow the tribe with a new burthen upon her shoulders. Who can wonder that a sex thus dishonored and disregarded often found in suicide a repose which its master and the world denied it? Of the habits, manners, and customs of the North American Indians this is not the place to speak in detail. All these have been so often made the subject of research, and have been so fully elucidated, that the reader can be at no loss for authorities should his curiosity tempt him to pursue the inquiry, and further information may be found in the separate articles on the various tribes in this work. It may be sufficient to say, that of all the aborigines of the northern continent those of Mexico were the most civilized. They founded towns, established a regular monarchical dynasty, wove cloth, cultivated the earth, erected edifices of considerable architectural importance and beauty, and, although without iron, were not without skill in the manufacture of gold, silver, and copper. They were also adepts in the art of hieroglyphics. Their spoken language was copious and polished. This race, or more probably one which preceded it, has left behind memorials that are still visible. Among these are the tumuli or barrows of the valley of the Mississippi, which were evidently erected for the purposes of defence, and the *teocallis*, or four-sided pyramids of Mexico. Of the first there are said to be 10,000 in the state of Ohio alone. In Central America, Chiapas, and Yucatan, the remains of 44 towns have been discovered, and the researches of the late Mr. Stephens have shown that they must have been extensive and imposing. Here are found the ruins of temples and of palaces, of pyramids and of obelisks, statuary, sculpture in relief, stucco, and hieroglyphical tablets. The learned world still hesitate to assign these stupendous works to the race found by Cortes in Mexico, and conjecture ascribes them to the people who are supposed to have inhabited the table-lands of Mexico before the Aztec invasion. (See AMERICAN ANTIQUITIES).—At this point we may say whatever the limits of this article will permit, concerning the discovery of the American continent. It is believed that it was known to the barbarous tribes of Asia from a very early period. The Norwegians planted colonies in Greenland about 974 A. D., or perhaps earlier. A Runic inscription found upon a stone four miles beyond Upernavik, at the 78d parallel, shows a visit to that point of the Norwegians either in 1185 or 1170, the marking of the date being indistinct. Another tra-

dition records the planting of an Icelandic colony upon Rhode Island about the year 1001. The Canary Islands, the Azores, and Madeira, were discovered in the beginning of the 15th century, imparting a fresh spirit to maritime adventure. Christopher Columbus, whose name is inseparably connected with the discovery of the New World, sailed, under the patronage of Ferdinand and Isabella of Spain, from Palos, Aug. 8, 1492, in search of eastern Asia by a western route. The details of his voyage will be found in another article. (See COLUMBUS.) On Oct. 12 he landed at Guanahani, or San Salvador, one of the Bahama islands. In the course of the ensuing three months, and previous to his return from Spain, he visited Cuba, Hispaniola, and other islands. Upon his second voyage, he coasted along a part of South America, which he accurately believed to be a continent. He made still another voyage, and died in the full belief that the lands which he had discovered were a portion of Eastern Asia. In 1497, John Cabot, with his son Sebastian, discovered Newfoundland, and coasted along the shores of North America to Florida. The mouth of the Amazon was discovered by Pinçon, a Spaniard, in 1500. Florida was distinctly discovered by Ponce de Leon, in 1512, in which year Sebastian Cabot first discovered Hudson's bay. California was discovered by Cortes in 1587. Further than this it is unnecessary in this place to trace the progress of geographical research.—CENTRAL AMERICA is that portion of the continent which unites North and South America. It is an irregular and narrow neck of land between about 7° and 18° north latitude, its entire length being between 800 and 900 miles, and its breadth varying from 20 to 80 miles in the narrowest part to between 300 and 400 miles in the widest part, the area being about 200,000 square miles. It includes the isthmus of Panama, Guatemala, British Honduras, parts of Mexico and Yucatan; being bounded on the N. by Mexico and the Caribbean sea, on the E. by the Caribbean sea, and on the S. W. and W. by the Pacific ocean. Those political states, which are generally known as Central America, include Guatemala, St. Salvador, Honduras, Nicaragua, and Costa Rica. These lie between about 8° and 17° N. lat. The population of these states as estimated in 1850 was as follows, viz. :—

Guatemala,	1,000,000
St. Salvador,	280,000
Honduras,	350,000
Nicaragua,	285,000
Costa Rica,	150,000
	2,015,000

Of these the proportion of the different races is stated at that time to have been as follows :

Whites and creoles,	1-12
Mixed classes,	4-13
Indians,	7-13

The general surface of the country is in most parts mountainous. It is traversed throughout its Pacific border by the Rocky mountain

chain, the great range being divided into the Honduras and Nicaraguan group, the Costa Rican group, and the group of Guatemala. The whole chain is marked by volcanoes, of which those in Guatemala are the most remarkable. Parts of the Costa Rican group attain a great height, the volcano of Irasu being 11,478 feet above sea-level. The country is not very rich in the precious metals, although gold, silver, lead, and mercury, are found. Iron is furnished in abundance. The geological substratum of the country is formed of granite, gneiss, and mica slate, with limited lines of granite and schist formation. The climate is warm and moist, and the soil very rich. There are properly but two seasons—the winter, when the sun is nearly vertical, and the summer, in which hot and dry weather prevails, with a healthy atmosphere. During the winter the rain is almost constant; and in the low districts, in consequence of vegetable decomposition, fevers, agues, and other diseases prevail, to which foreigners are especially subject. The vegetable productions of Central America are various, including, upon the table-lands, all the fruits and grains of temperate regions, and in the lower and warmer parts, those of the tropics. Sugar-cane, tobacco, and indigo, are cultivated. The forests furnish some of the most valuable woods in the world, including mahogany, logwood, and lignum vita. The coffee crop of Costa Rica is considerable, amounting in 1852 to 90,000 quintals.—The zoology of Central America presents no peculiar features. Of the *cetacea*, we notice the manati, found at the mouth of Rio Juan; of the *rodentia*, the winged squirrel; and of the *quadrumania* there is a large variety. The country abounds in fine ornithological specimens, comprehending humming-birds, quezals, and macaws. Serpents are numerous, and in some parts dangerous.—The position of Central America has been rendered, by the discovery of California, in the highest degree important; most of the travel from the eastern coast to that state being across the isthmus, by railroad from Aspinwall to Panama. The projects of a ship canal, uniting the two oceans, which has long occupied the attention of the commercial world, are still numerous; but the researches of modern explorers have justified a belief in its possibility. Four different routes have been proposed. The first is across the isthmus of Tehuantepec, where the distance from sea to sea is 140 English miles. Many disadvantages are connected with this plan, its principal merit being that it would render available the shortest maritime route to California. The second is the Nicaraguan route, by the river San Juan, across Lake Nicaragua, and thence to the Pacific by different routes. The third is across the isthmus from Chagres to Panama; and the fourth from the bay of Oboco, along the Atrato and Naipi, and thence by canal to Cupica bay on the Pacific.—The political condition of the Central American

states is extremely unsettled. When the authority of Spain was thrown off in 1823, the 5 states above mentioned formed a federal republic, resembling in some particulars that of the United States. This confederation was abandoned in 1839. The government of the states is only nominally republican, the military rule of adventurers being despotic. The recent attempt of a citizen of the United States to subjugate Nicaragua, while it has resulted in failure, has left the affairs of Central America in a condition on which nothing can be safely predicated.—**SOUTH AMERICA**, the southern peninsula of the American continent, extends from Point Gallinas, in lat. $12^{\circ} 80' N.$, to Cape Horn, in lat. $55^{\circ} 59' S.$ Its greatest length from N. to S. is 4,550 miles; its greatest breadth, 3,250 miles; and it covers an area of 6,500,000 square English miles. It is naturally divided into 5 distinct physical regions, viz.: I. the low country bordering on the shores of the Pacific ocean, from 50 to 100 miles in breadth, the extremities of which are fertile, while the middle is a sandy desert; II. the extensive plains or steppes in the basin of the Orinoco, which, though destitute of wood, are covered with a high herbage during a part of the year, and upon which, during the dry season, the heat is intense; III. the rich basin of the Amazon, spreading over a surface of more than 2,000,000 square miles, and covered with dense forests thinly inhabited; IV. the southern plain, watered by the Rio de la Plata, and abounding in steppes, which sustain innumerable herds of horses and cattle; V. the country of Brazil, eastward of the Parana and Araguay, covered with wood on the Atlantic side, and opening into steppes in the interior. About three-quarters of South America are within the lines of the tropic, and the remainder in the southern temperate zone. At its southern extremity is the archipelago of Terra del Fuego.—The political divisions of South America are as follows: the republics of New Granada, Ecuador, and Venezuela, the French, English, and Dutch colonies of Guiana, the republics of Peru, Chili, Bolivia, the Argentine republic, the republics of Paraguay and Uruguay, the empire of Brazil, Patagonia, Terra del Fuego, and the Falkland islands. Of these, Brazil is the largest, embracing an area of 3,004,460 miles, and being nearly as large as Europe. Its natural advantages are very great. Its climate is cooler and healthier than that of any other great tropical country; its soil is extremely fertile, and its commercial facilities unrivalled. It is rich in mines of gold and diamonds, and it yields also iron and copper. Its exports are cotton, sugar, hides, tobacco, dyewoods, &c. Its government, although imperial in form, is unusually liberal. Excellent schools are established, and the newspapers are numerous and untrammelled, while in its legislature perfect freedom of debate prevails. Its population is about 6,665,000, including 3,500,000 slaves, and 500,000 free persons of color, excluding the savage tribes.—The states of Vene-

zuela, New Granada, and Ecuador, formerly composing the confederation of Colombia, embrace an area of 1,020,000 square miles, being bounded on the S. by Peru, on the S. and E. by Brazil and Guiana, and on the other sides by the sea. The soil is very fruitful, and the climate generally salubrious. Upon the western side, the table-lands afford all the productions of temperate climes. The tropical vegetation extends to the height of 4,000 feet; and at an elevation of from 4,000 to 9,000 feet wheat and barley thrive. The commercial facilities, particularly those of New Granada, are excellent. The population of these states is estimated at 4,382,848, of which Venezuela contains 1,419,289, New Granada, 2,863,054, and Ecuador, 500,000.—The Argentine republic is the second state in importance in South America. It is bounded on the W. by Chili; on the N. by Bolivia; on the E. by Paraguay and Uruguay; on the S. E. by the sea; embracing an area of 780,000 square miles. It produces gold, silver, and iron. Its chief commercial city is Buenos Ayres.—Chili extends along the coast of the Pacific, from 25° to 44° of S. lat., and is 1,150 miles in length, containing a population of about 1,080,000, and covering an area of 170,000 square miles. It produces gold, silver, and copper. Only a portion of it, which has been estimated at one fiftieth, is fit for cultivation.—Peru, consisting of the western declivities of the Andes, from 8° to 21° of S. lat., is a remarkably barren country, it having been computed that only one acre in 100 is fit for cultivation. Its mines of precious metals are rich; but it is without the facilities of internal communication. The population is estimated at 2,279,085. Its area is about 400,000 square miles.—Bolivia lies eastward of Peru, and is bounded on the S. by the Argentine republic, and on the N. and E. by Brazil, comprehending a space of 374,480 square miles. Its agricultural resources are limited, but its mines are among the richest in the world. Its population is 1,030,000.—The grand distinguishing physical feature of South America, is the wonderful succession of mountainous ranges to which the general name of the Andes has been applied, extending from the southern extremity, and connecting through the Cordilleras with the Rocky mountains, a distance of over 4,500 miles. These mountains skirt the coast of the Pacific ocean, "like a vast rampart opposed to its encroachments." Their name is derived from *anta*, a Peruvian word signifying copper. Although these mountains are usually spoken of as forming a continuous chain, they are a succession of ridges, with high and narrow valleys intervening, not running in parallel lines, but ramifying from central points in all directions, and presenting a confused assemblage of small chains. They spread between the latitude of 6° and $33^{\circ} S.$, to an extent of 800 miles; and in the intervals of the ridges are found many lakes, some of them of great magnitude. From the latitude of $6^{\circ} S.$ to

2° N., their breadth is contracted, and they form an elevated plateau, a part of which consists of the desert of Asuay, 13,000 feet above sea level, and covering 50 square miles—an inhospitable and unproductive region. Upon the range of table-land to the north, about 9,500 feet in height, the town of Quito is situated. Hence a single chain extends to Popayan, and here 3 parallel chains commence, the most westerly of which, rising to an elevation of 5,000 feet, divides the valley of the river Cauca from the Pacific ocean. The second ridge separates the valley of the Cauca from that of Magdalena. The third separates the valley of the Magdalena from the plains of the Rio Meta, and terminates at Cape Vela, in long. 73°. In Peru, the mean height of the Andes is estimated at 11,000 or 12,000 feet; in Chili, at 8,000; while in Patagonia it is as yet unmeasured and unestimated. The loftiest summits are found in Peru, in which the eastern chain presents, between the 14th and 17th parallels, peaks of an elevation exceeding 20,000 feet, among which are Sorata, 25,800, and Illimani, 24,450 feet in height. Chimborazo is 21,300 feet, and the volcanic cones of Antisana and Cotopaxi are 19,150 and 18,890 feet respectively. A summit of the western chain presents an altitude of 18,800 feet. Three transverse chains of the Andes pass eastward, nearly at right angles with the principal chain, across the continent, in the parallels of 18° S. and 4° and 9° N. lat. The Cordilleras of the coast, parting from the main trunk near Lake Maracaybo, and reaching the sea near Porto Cabello, passes through Caracas to the gulf of Paria, being 700 miles in length, its medium elevation being from 4,000 to 5,000 feet, the Silla de Caracas being an elevation of 8,400 feet, and the Sierra of Merida in its western part of 15,000 feet in height. The transverse chain connects with the Andes at the parallels of 8° and 4° N., terminating in French Guiana, near the mouth of the Amazon, its mean height being estimated at 4,000 feet, although in certain points it rises to 10,000. Its length is about 1,500 miles. A third chain crosses the continent between the parallels of 12° and 18°, and connects the Andes with the mountains of Brazil, dividing the waters of the Amazon from those of La Plata. It is a broad plateau, the average height of which does not exceed 2,000 to 3,000 feet. In Brazil, are mountains of moderate height, extending from 5° to 25° of south latitude, their extreme breadth being about 1,000 miles. The most elevated summit is that of Itacolumi, rising to 5,710 feet. The mountains of South America are singularly volcanic in character, it being supposed that not less than 80 volcanoes, all belonging to the Andes, are in a condition of continual activity. The highest of these is Gualateiri, which rises 22,000 feet. The others vary in height from 13,000 to 18,000 feet. Nearly one-fifth of all the volcanoes known in the world are found in South America.—The geology of South America is of a highly interesting character. The funda-

mental rock of the Andes is granite of a peculiar character, termed Anderite, being a compound of albite and hornblende, frequently united with mica and rarely with quartz. This combination passes on the one hand into granite, and on the other into felspar porphyry. Vast masses of felspar or claystone porphyry cover the fundamental rock. Mingled with these are mica slates and clay slates, with silurians, and above these sandstones, gypsum, and chalk. The chain of the Andes, as already stated, is rich in precious metals. Crystalline schists are found in the greater part of Brazil, Venezuela, and Guiana; and in the mud of the banks of the Parana, the fossil remains of mammalia are discovered in great numbers. The transverse chain of the coast of the Caracas consists partly of primary and partly of secondary formations. The Cordillera of Parimé is composed of granite, gneiss, mica slate, and hornblende; the prevailing rock of the Cordillera of Chiquito is quartzose mica slate, mixed with granite, gneiss, and quartz rock, granite abounding in those nearest the Atlantic. The northern Llanos of Caracas are of old red sandstone.—In rivers, the southern extremity of the continent rivals the northern. Among these, the most important are the Amazon, which, from its source in the Andes, is 4,000 miles in length, with an area of basin of 2,100,000 square miles, and 50,000 miles of navigable waters; the La Plata, including the Uruguay, 2,400 miles in length, with an area of basin of 1,200,000 square miles, and 20,000 miles of navigable waters; and the Orinoco, which is 1,800 miles in length, with an area of basin of 400,000 square miles, and 8,000 miles of navigable waters. It is stated that by the Amazon, a person living at the eastern foot of the Andes, 2,000 miles of direct distance from the Atlantic, may convey himself to the shores of that ocean in 45 days, simply by committing his bark to the current, while an eastern breeze, which is almost constant, will facilitate his return, the navigation being uninterrupted by a single cataract or rapid. Branches of the La Plata and the Amazon stretch into almost every part of South America. This continent is, however, scantily provided with great lakes and bays. Among the most important of these are the gulfs of Darien, Maracaybo, and Paria; the bays of Bahia, Rio Janeiro, St. Matthias, St. George, and Choco; and the gulfs of Peñas, Guaytecas, and Guayaquil. Lake Titicaca is the largest in South America. It is situated upon the borders of Peru and Bolivia, covers an area of about 4,000 square miles, is 120 fathoms deep, and 12,800 feet above sea-level.—The zoology of South America is rich and varied in its character. It embraces 59 species of the *quadrumana*. Of the *carnivora*, we have the jaguar, the black jaguar, the ocelot, the tiger-cat, the Cordillera bear, and the vampire; of the *edentata*, the sloth, armadillo, and ant-eater; of the *pachydermata*, the tapir; and of the *ruminantia*, the llama, alpaca, and vicuña. The serpents are large and

numerous, the greatest being the boa-constrictor. The ornithology is exceedingly brilliant and interesting. It includes among birds of prey, the condor, eagle, vulture, and falcon, with the macaw, parrot, humming-bird, water-hen, tiger-bittern, duck, thrush, oriole, toucan, and curassow. The country abounds in troublesome and dangerous insects, including ants, termites, mosquitoes, and chiggers. The waters contain alligators, and a great variety of fish.

—The vegetable productions of South America have already been to a certain extent indicated. A very large proportion of its surface is uncultivated, and must remain forever incapable of cultivation. Immense forests cover two-thirds of the whole continent, some of the trees being the largest and most magnificent in the world. Vegetation almost entirely disappears at 10,800 feet above the sea-level, no trees with large trunks growing beyond the level of 9,000 feet. A single variety of the palm is found at 8,700 feet above the sea-level. At 8,000 feet, are found the finest palms, lilies, balsams, and jessamines. The continent produces almost every variety of tropical fruit, together with the sugar-cane, coffee, wheat, maize, barley, and potatoes. It is also rich in some of the most valuable woods of commerce.—Notwithstanding its geographical position, the climate is more temperate than might be supposed. In the western and warmest regions of Caracas the temperature is only 98° F. in the shade. At Calabozo, further east in the Llano, the common temperature of the day is only from 88° to 90°, the thermometer sinking at sunrise to 80°. The basin of the Amazon, shaded by forests, and cooled by a breeze from the east, ascending the channel of the stream, is neither excessively hot nor unhealthy. At Rio Janeiro, the mean temperature is only 74°, and in Paraguay it falls below 65° or 67°. The plants of Italy, France, and Germany, mature upon the declivities of the Andes and the plains of Peru. At Lima, the mean temperature is only 72°, and at Buenos Ayres, 68°. At the straits of Magellan, the temperature of the warmest month does not exceed 46°, snow falling almost daily in the middle of summer.—Among the aborigines of South America, the Peruvians held the first rank in civilization. The empire of Peru embraced the whole seacoast from Pastos to the river Maule, a line of 2,500 miles in length, and its entire surface probably exceeded 500,000 square miles. The immense hordes inhabiting these regions were governed by an aristocracy of priests and nobles. The Peruvians, though lacking in military spirit, and destitute of a hieroglyphical language, were skilful in agriculture, in architecture, and in the working of metals and stone. The remains of their temples and cities attest their extraordinary advance in the arts of civilization. The Chilians possessed nearly all the arts known to the Peruvians, with a finer physical organization and a more unconquerable spirit. Of these, the Araucanians were the bravest and

most warlike, and have been pronounced the finest native race in the world. The other Chilian tribes were much behind the Araucanians in civilization, but some, as the Puelches and Tehuels, surpassed them in stature. The Patagonians were also connected with the Chilian tribes. Their great stature, the narration of which has heretofore been received with incredulity, is now well established, many of them attaining a height of 7 feet. The Guaranis were the most important tribes of Brazil. They were widely diffused through the country, and were deficient both in civilization and a warlike spirit. The Paraguay Indians were converted by the Jesuits and settled into communities. These were commenced about 1610, and gradually extended over the country watered by the Parana and Uruguay, between the 27th and 80th degrees of south latitude. Upon the suppression of the Jesuits in 1767, the Paraguay Indians returned to their idolatry and savage habits. The population of South America is estimated at 16,000,000 of all races. In no other country, perhaps, has there been such an admixture of blood. The Spanish, Indian, and African races, have become so interwoven, that with the materials at hand, an accurate classification seems almost impossible. Large numbers of the aboriginal tribes still remain, it being computed that in Peru alone, there are not less than 1,000,000 of Indians, while in all the states they are found sometimes maintaining their habits and their independence, but oftentimes sunk to the most menial and abject condition. The Araucanians are the most advanced in civilization, associating in communities, and being very skilful in the working of wool and metals. The Indians of the pampas are expert horsemen, but do not cultivate the earth, and are cruel and ferocious. The Indians of Brazil are very numerous, there being no fewer than 200 distinct tribes. Of these, the principal are the Tapuyas, the Tupis, the Cafusos, and the Puris. The Patagonians are nomadic; but little is known of their customs and character.

AMERICAN ANTIQUITIES. A large part of what are called the antiquities of America, consist only of the architectural and other remains of the aboriginal tribes and nations, which have been displaced or subjugated by European conquest and settlement. Such are many of the ruined temples and other edifices of Peru, Central America, and Mexico, as well as most of the ruder monuments of New Mexico, and probably all of those still ruder earthworks and rock-sculptures which are found eastward of the Alleghanies. Cartier in Canada, and Smith in Virginia, as well as the Pilgrims in New England and the French in western New York, all found the Indians constructing defences, consisting of ditches, embankments, and palisades, the remains of which are still numerous, and which have been variously ascribed to Celtic, Hebrew, and Tartar origins, according to the bias of writers, or the nature of foregone conclusions which they were desirous of sup-

porting. So too Coronado, who marched into New Mexico as early as 1540, found there in perfect condition and actual use, those singular edifices of fort-like dimensions, and numerous stories, which since, abandoned and ruined, under the name of *casas grandes*, have been claimed, by superficial investigators, as monuments of an entirely supposititious migration of the Aztecs, from some undefined northern region, or from the frozen wastes of Kamtchatka, beyond the straits of Behring. Cortes in Mexico, Grijalva and Montejo in Yucatan, Alvarado in Guatemala, and Pizarro and his captains in Peru, all found vast and imposing structures, the work of the actual inhabitants, the ruins of which are almost universally confounded with those of more ancient monuments, the earlier works of the same hands, or of unknown or extinct peoples. It is certain that Cholula, Uxmal, and Chichen, Quiché, and Pachacamac, were all perfect and occupied at the time of the conquest, 50 years subsequent to the period when the foundations of the, as yet, unfinished Duomo of Milan were laid. Hence their remains, however interesting and valuable as illustrating American aboriginal art, and as giving intelligibility to the descriptions of the conquerors, can hardly be considered as falling within the denomination of American antiquities. Under this head, in a strict sense, we can only include such monuments as were really regarded as antiquities by the aborigines themselves, concerning the origin of which they were wholly ignorant, or only possessed a traditional knowledge. Of this character are most of those earthworks and mounds, traced in gigantic outlines, and with geometrical precision, on the broad terraces of the Mississippi valley, and which rise, in grand proportions, in the silent forests bordering on the Mexican gulf. Such, also, are the ruined pyramids of Teotihuacan and the crumbling edifices of Mitla, mysterious city of the dead, in Mexico; the still more imposing and elaborate structures and strangely sculptured monoliths of Palenque and Copan; and the vast Cyclopean monuments on the islands and shores of Lake Titicaca, raised, according to tradition, by giants, in a single night. —Commencing with our own country, we find in the Mississippi valley a succession of earthworks, manifestly defensive in character, extending from the Lakes southward to the Gulf. They generally crown the summits of steep hills, and consist of an embankment and exterior ditch, of varying dimensions, with approaches often artfully covered, with a clear appreciation, of the elements at least, of the science of fortification. Some of these works are of vast size. Fort Hill, on the banks of the Little Miami river in Ohio, has a line of circumvallation nearly 4 miles in extent, and varying in height, according to the greater or less natural strength of the point protected, from 10 to 30 feet, and embracing an area of several hundreds of acres. When not erected in proximity to streams, and in cases where springs are not in-

cluded within their lines, we always find artificial reservoirs for holding water, and other unmistakable provisions for withstanding siege as well as sudden attack. A large class of these defensive works consist of a line of ditch and embankment, or several lines one within another, carried across the necks of peninsulas, or bluff headlands, formed within the bends of streams —an easy and obvious mode of fortification, common to all rude peoples. Associated with these defensive works, and often included within them, is another and more interesting class of remains, namely, structures demonstrably of sacred origin, and in some way connected with the religious ideas and ceremonies of their builders. They consist of earthworks with their ditches, when such exist, interior and not exterior to the walls, of regular outline, squares, circles, octagons, and other geometrical figures, often combined, and sometimes of great extent, as for instance at Newark in Ohio, where they cover an area of more than 3 miles square, and probably comprise upwards of 12 miles of embankment from 2 to 20 feet in height. It is impossible here to present the evidences upon which the conclusion, as to the religious character of these structures, is based. The curious reader, upon this, as all other points connected with the aboriginal monuments of the Mississippi valley, is referred to the elaborate work of Squier and Davis, forming the first volume of the "Smithsonian Contributions to Knowledge." Other works, of a sacred or religious origin, consisting of mounds of earth and stone, of various sizes, but always regular shapes, are found in connection with those above described, and are very numerous. They are oftenest square, terraced, and ascended by graded ways; sometimes hexagonal, octagonal, or truncated, and ascended by spiral paths, in most respects coinciding with the *teocallis* of Mexico, and the *topes* of India—the high altars, symbolical in form, on which the priests of the primitive religions offered up their sacrifices, and paid their adoration to the solar god, in the presence of its assembled worshippers. Some of these arrest our attention by their geometrical accuracy of form, and others by their great size, covering, as they sometimes do, several acres of ground, and rising to imposing altitudes. A mound of this description, on the plain of Cahokia in Illinois, opposite the city of St. Louis, is 700 feet long, by 500 feet broad at the base, and is 90 feet high, covering upward of 8 acres of ground, and having 20,000,000 cubic feet of contents. The primary purpose assigned to these mounds is in no way invalidated by the circumstance that they frequently contain the skeletons of those who built them, and who entertained the same prejudices, in favor of sepulture in sacred places, which is still common, and which looks to a burial-place beneath or in the neighborhood of a church. The most common monuments in the Mississippi valley, however, are these, which are incontestably simple places of sepul-

ture—memorials raised over the dead, and in their size, probably, bearing a certain proportion to the importance, when living, of the personages over whom they were raised. Some of these, like that for instance at Grave Creek near Parkersburg in western Virginia, and that at Miamisburg in Ohio, the one 70, and the other 68 feet in vertical height, no doubt mark the graves of personages of high consequence amongst the builders of these monuments. It sometimes happens that one of these sepulchral mounds contains two or more skeletons, but they rarely cover more than one, except in cases where the later Indian tribes, with a vague notion of their sanctity, have buried their dead in them. The notion, so long prevalent, and still common, that they contain vast heaps of slain, and are the memorials of great battles, is wholly unsupported by facts. A still more remarkable variety of earthworks are those commonest in Wisconsin and Iowa, but of which a few examples are found in Ohio, and which bear the outlines of men and animals, constituting huge *basso-reliefs* on the surface of the earth, and challenging our wonder by their number, variety, and extent. One of these, surveyed by Squier and Davis, in 1846, on the banks of Brush Creek, Adams county, Ohio, is in the form of a serpent, upwards of 1,000 feet in length, extended in graceful curves, and terminating in a triple coil at the tail. The embankment constituting the effigy, is upward of 5 feet in height, by 80 feet base at the centre of the body, diminishing somewhat toward the head and tail. The neck of the figure is stretched out and slightly curved, and its mouth is opened wide, as if in the act of swallowing or ejecting an oval figure, which rests partly within the distended jaws. This oval is formed by an embankment 4 feet in height, and is perfectly regular in outline, its transverse and conjugate diameters being 160 and 80 feet respectively. The combined figure has been regarded as a symbolical illustration of the Oriental cosmological idea of the serpent and the egg; but however that may be, little doubt can exist of the symbolical character of the monument. With the remains of the dead in the sepulchral mounds, as also within those which are believed to have been connected with the religion of their builders, many relics of art have been discovered, displaying greater skill and advancement in the arts than was known to exist amongst the tribes found in occupation of the country at the time of the discovery. Elaborate carvings in stone, pottery, often of elegant design, articles of use and ornament in metal, silver, and native copper from Lake Superior, mica from the Alleghanies, shells from the gulf of Mexico, and obsidian, probably also porphyry, from Mexico, are found side by side in the same mound. Articles of comparatively recent date, some of them of undoubted European origin, have also been found amongst the later and secondary deposits in the mounds, which curiosity-hunters and ignorant specula-

tors have seized upon, in support of their various idle hypotheses. Forged inscriptions, stones bearing mysterious characters, "Ere, ancient Greek, Phœnician, Celtiberic, and Runic," as evidences of every possible and impossible theory of American origin, have each found people credulous enough to accept and defend their authenticity, even after the authors of the various impostures have abandoned them to their fate. The tenacity with which minds of credulous tendencies cling to the marvellous and absurd, against all the illustrations of positive science, is shown in nothing more clearly than in the fact, that to this day, the old windmill at Newport, the rude Indian pictures on Dighton Rock, and the scratches on a pebble, alleged to have been found at Grave Creek, are still adduced as evidence of Scandinavian, Phœnician, and even Hebrew discovery and occupation of the American continent! The facts connected with the monuments of the Mississippi valley, "indicate that the ancient population was numerous and widely spread, as shown from the number and magnitude of their works, and the extensive range of their occurrence; that it was essentially homogeneous in customs, habits, religion, and government, as appears from the great uniformity which the works display, not only in respect of position and form, but in all minor particulars; and that the features common to all the remains, identify them as appertaining to a single grand system, owing its origin to a family of men moving in the same general direction, acting under common impulses, and influenced by similar causes." Whatever differences the monuments display, are such as might result from the progressive efforts of a people in a state of development, or from the weaker efforts of colonies, or what might be called provincial communities. It is impossible that a population for whose protection such extensive military works were necessary, and which was able to defend them, should not have been eminently agricultural; and such monuments as the mounds at Grave Creek and Cahokia, indicate, not only a dense agricultural population, but a state of society essentially different from that of the modern race of Indians north of the tropics. There is not, and there was not, at the period of the discovery, a single tribe of Indians, north of the semi-civilized nations of Mexico and Central America, which had the means of subsistence to enable them to supply, for such purposes, the unproductive labor necessary for the work; nor were they in such a social state as to compel the labor of the people to be thus applied. As regards the antiquity of these monuments, apart from such facts as a total absence of any reasonable traditions as to their origin, amongst the Indians themselves, and the existence of the largest and most ancient forest trees on the embankments and in the ditches of the various works, there are other facts which enable us to arrive at approximate conclusions upon this point. None of these works occur on the lowest formed of

the river terraces which mark the subsidence of the western streams; and as there is no good reason why their builders should have avoided erecting them on that terrace, while they raised them promiscuously upon all the others, it follows, not unreasonably, that this terrace has been formed since these works were erected—a conclusion supported by the important fact, that some of them have been in part destroyed by streams which have since receded for half a mile and upward, and which, under no present possible rise, from rains or other natural cause, could reach the works again. Upon these premises, the time since the streams have flowed in their present courses may be divided into four periods, corresponding to the four terraces which mark the eras of their subsidence, of which periods the last and longest (since the excavating power of the streams diminishes as the square of their depth increases) has elapsed since the race of the mounds flourished. Another fact bearing upon the question of the age of these works, is the extremely decayed condition of the human remains found in the mounds. Considering that the earth around the skeletons is for the most part wonderfully compact and dry, and that the conditions for their preservation are exceedingly favorable, while they are in fact usually in the last stage of decomposition, we may form some approximate estimate of their remote antiquity. In the barrows of the ancient Britons, in a moist climate, and under unfavorable conditions as regards preservation, entire and well-preserved skeletons are often found, although possessing an undoubted antiquity of at least 1,800 years. From these and other facts and circumstances equally conclusive, we may deduce an age for most of the monuments of the Mississippi valley of not less than 2,000 years. By whom built, and whether their authors migrated to remote lands under the combined attractions of a more fertile soil and more genial climate, or whether they disappeared beneath the victorious arms of an alien race, or were swept out of existence by some direful epidemic or universal famine, are questions probably beyond the power of human investigations to answer. History is silent concerning them, and their very name is lost to tradition itself!—The principal remains of antiquity in Mexico are the ruins of temples and of structures dedicated to defensive purposes. Those of undoubtedly high antiquity are most massive in character, and display remarkable evidences of taste and skill. It would seem, that during the aboriginal rule, the inhabitants, as a whole, dwelt in rude dwellings of thatch and cane, which, after a few years of abandonment, would decay and leave no trace of their existence, except perhaps in the fragments of broken pottery which might surround them. Whatever of architectural skill they possessed was dedicated to the construction of their temples and the residences of their chiefs, which were often included the one within the other, since the ruler fre-

quently combined, in his own person, the double office of priest and king. These temples were, in nearly all cases, pyramidal in form, terraced and truncated, and ascended by flights of steps usually built on an inclined plane running up the centre of one of the sides, generally that opposed to the rising sun. These structures perhaps better deserve the name of altars, or the Scriptural name of "high places," than of temples; an edifice, built on the level summit, in reality, constituting the *nave*, or temple proper. The great temple of Mexico, which is described by all the early writers as nearly identical in form and structure with all the temples of Anahuac, consisted of an immense square area, "surrounded by a wall of stone and lime, 8 feet thick, with battlements, ornamented with many stone figures in the form of serpents." The extent of this inclosure, which occupied the centre of the ancient city, may be inferred from the assertion of Cortes, that it might contain a town of 500 houses. It was paved with polished stones, so smooth, says Bernal Diaz, that "the horses of the Spaniards could not move over them without slipping." The 4 walls of this inclosure corresponded with the cardinal points, and gateways opened midway upon each side, from which, according to Gomera, led off broad and elevated avenues or roads. In the centre of this grand area arose the great temple, an immense pyramidal structure of 5 stages, faced with stone, 800 feet square at the base, and 120 feet in height, truncated, with a level summit, upon which were situated 2 towers, the shrines of the divinities to whom it was consecrated. It was here the sacrifices were performed, and the eternal fire maintained. One of these shrines was dedicated to Tezcatlipoca, the other to Huitzilpochtli; which divinities sustained the same relation to each other, in the Mexican mythology, as Brahma and Siva in that of the Hindoos. Beside this great pyramid, according to Clavigero, there were 40 other similar structures, of smaller size, consecrated to separate divinities; one was called *Tezcatcalli*, "House of the Shining Mirrors," which was covered with brilliant materials, and sacred to *Tezcatlipoca*, the God of Light, the Soul of the World, the Vivifier, the Spiritual Sun; another to *Tlaloc*, the God of Water, the Fertilizer; another to *Quetzalcoatl*, said to have been the God of the Air, whose shrine was distinguished by being circular, "even," says Gomera, "as the winds go round about the heavens, for that consideration made they his temple round." Beside these, there were the dwellings of the priests (amounting, according to Zarate, to 5,000), and of the attendants in the temples, and seminaries for the instruction of youth; and, if we are to credit some accounts, houses of reception for strangers who came to visit the temple, and see the grandeur of the court. Ponds and fountains, groves and gardens, in which flowers and "sweet smelling herbs" were cultivated for use in certain sacred rites,

and for the decoration of the altars. "And all this," says Solis, "without retracting so much from that vast square but that 8,000 or 10,000 persons had sufficient room to dance in it, upon their solemn festivals." The area of this temple was consecrated ground; and it is related of Montezuma, that he only ventured to introduce Cortes within its sacred limits, after having consulted with the priests, and received their permission, and then only on the condition, in the words of Solis, that the conquerors "should behave themselves with respect." The Spaniards having exhibited, in the estimation of Montezuma, a want of due reverence and ceremony, he hastily withdrew them from the temple, while he himself remained to ask the pardon of his gods for having permitted the impious intrusion. There is a general concurrence in the accounts of this great temple given by the early authorities, among whom are Cortes, Diaz, and others, who witnessed what they described. They all unite in presenting it as a type of the multitude of similar structures which existed in Anahuac. Their glowing descriptions, making due allowance for the circumstances under which they wrote, are sustained by the imposing ruins of Cholula, Papantla, Mitla, Xoxoahcalco, Misantla, Quemada, and the thousand other monuments which are yet unrecorded by the antiquary, and which invest every sierra and valley of Mexico with an interest hardly less absorbing than that which lingers around the temples of Egypt. From the number of these religious structures, we gather some idea of the predominance of Mexican superstitions. Solis speaks of 8 temples in the city of Mexico, of nearly equal grandeur with that above described, and estimates those of smaller size to amount to 2,000 in number, "dedicated to as many idols of different names, forms, and attributes." Torquemada estimates the number of temples in the Mexican empire at 40,000, and Clavigero places the number far higher. "The architecture," he adds, "of the great temples was for the most part the same with that of the great temple of Mexico; but there were many likewise of a different structure, composed of a single body in the form of a pyramid, with a staircase, etc." Gomera says, "they were almost all of the same form: so that what we shall say of the principal temple, will suffice to explain all the others." Cortes, in a letter to Charles V., states that he counted 400 of these pyramidal temples at Cholula. From all sources we gather that the principal temples, or rather sacred places of Mexico, consisted of large square areas, surrounded by walls, with passages midway at their sides, from which avenues or roads sometimes led off, and that within these inclosures were pyramidal structures of various sizes, dedicated to different divinities, as also the residences of the priests, with groves, walks, and fountains. It has already been said that the pyramids of Teotihuacan, which are found within 8 leagues of the city of

Mexico, on the plain of Otumba, are probably amongst the most ancient monuments of Mexico. There are 2 principal ones, dedicated, according to tradition, to the sun and moon respectively; each built of cut stone, square, with four stages and a level area at its summit. Humboldt states that the larger is 150 feet, and the smaller 145 feet in height. Mr. Brantz Mayer, however, affirms that the larger is 171 feet high; Mr. Glennie, 221 feet. It is 680 feet square at the base, covering an area of 11 acres, or nearly equal to that of the great pyramid of Cheops in Egypt. The pyramid of Cholula also has four stages, and, when measured by Humboldt, was 160 feet high, by 1,400 feet square at the base, covering an area of 45 acres!—The temples of Central America, of which so many ruins still exist to attest the religious zeal of their builders, although possessing a general correspondence with those of Mexico, had, nevertheless, many features peculiar to themselves. The artificial terraces or pyramidal elevations seem to have been usually less in size, but crowned with more extensive buildings, upon which aboriginal art exhausted its utmost capabilities. These structures were marked by broad stairways, leading directly to their principal entrances. Upon some of these terraces a single building was erected, but upon the larger ones, several (usually 4) were arranged so as to form a court or area. They were massively built, the walls being, in all cases, of great thickness. The larger number were 1 story in height; but there were many of 2, and some of 8 or more stories. In these cases, each successive story was usually smaller than that below it; giving the structure the appearance of a pyramid of several stages. The fronts of these buildings, though sometimes stuccoed, were usually of stone, and covered with elaborately carved figures and ornaments, many of them, without doubt, symbolical. The interiors of some corresponded with the imposing character of their exteriors. They were divided into narrow corridors and dark chambers. These were arched, or rather the roofs were supported by overlapping courses of stones—constituting a pointed arch, corresponding in type with the earliest monuments of the old world. The walls of these corridors were often stuccoed, and covered with paintings of figures in bass-relief. Within some of the chambers, as at Palanque, have been discovered tablets clearly of a mythological character, covered with sculptures and hieroglyphics, of elaborate design and artistic execution. In these chambers are still found the remains of idols, altars, and the evidences of ancient sacrifices. The easily accessible works of Messrs. Stephens, Catherwood, and Squier, contain such full accounts of these monuments that it is unnecessary to point out their features in further detail.—In Honduras, at Copan, the remains of edifices are found, corresponding generally with the above description, but associated with grand monoliths,

intricately carved, such as have been discovered nowhere else except at Quirigua, in the vicinity of Copan, and on the islands of Lake Nicaragua. They seem to have been planted in the areas, perhaps also on the steps and summits of the ancient structures. Whether designed as statues of the gods of ancient worship, or to commemorate distinguished priests, warriors, or statesmen, can probably only be determined, when the hieroglyphical inscriptions, which some of them bear, shall have been deciphered. To Copan we may safely assign an antiquity higher than to any of the other monuments of Central America with which we are acquainted, except those rude works of earth and uncut stone which also exist there, and which seem to have been the early types, after which, as civilization and the arts advanced, the more imposing monuments of which we have spoken were modelled. It is certain that Copan was a ruin—concerning which existed only the vaguest traditions, at the period of the Spanish conquest.—In New Granada, among many minor relics of antiquity, such as figures of divinities and objects worked in gold and stone, are found a few considerable monuments, consisting of structures which seem to have been supported by columns of large size and just proportions. In Peru, however, we find a very large number of aboriginal monuments, consisting not alone of ruined temples, but of great works of public utility—aqueducts, bridges, and paved roads, of hundreds of miles in length. The remains of the great temple of the sun at Cuzco are still imposing. In describing it, as it existed at the time of the conquest, the early Spaniards expended every superlative of their language. It consisted of a principal building and several chapels and inferior edifices, covering a large extent of ground, in the heart of the city. It was completely encompassed by a circular wall, which, with the edifices, was constructed of stone. Aqueducts opened within this sacred inclosure; and within it were gardens, and walks among shrubs and flowers of gold and silver, made in imitation of the productions of nature. It was attended by 4,000 priests. "The ground," says La Vega, "for 200 paces around the temple, was considered holy, and no one was allowed to pass within this boundary but with naked feet." Nor even under these restrictions were any permitted to enter, except of the blood of the Incas, in whom were centred the priestly and civil functions of the government. Beside the great temple of the sun, there was a large number of inferior temples in Cuzco, estimated by Herrera at 800. Numerous others are scattered over the empire, all of which seem to have corresponded very nearly in structure with that already described. The one most celebrated, next to that of Cuzco, was that of Pachacamac, which is described as having been inclosed by walls, and to have "more resembled a fortress than a temple." According to Roman, "the temples of Peru were built upon

high grounds or the tops of hills, and were surrounded by 4 circular embankments of earth, one within the other. The temple stood in the centre of the inclosed area, and was quadrangular in form." A structure, corresponding very nearly with this description, is noticed by Humboldt, who denominates it, in accordance with local traditions, *Ingapilca*, "House of the Incas," and supposes it to have been a sort of fortified lodging-place of the Incas, in their journeys from one part of the empire to the other. It is situated at Cannar, and occupies the summit of a hill. The "citadel" is a very regular oval, the greatest axis of which is 125 feet, and consists of a wall, built of large blocks of stone, rising to the height of 16 feet. Within this oval is a square edifice, containing but 2 rooms, which resembles the ordinary stone dwellings of the present day. Surrounding these is a much larger circular inclosure, which, from the description and plate, we infer is not far from 500 feet in diameter. This series of works possesses few military features, and it seems most likely that it was a temple of the sun. This opinion is confirmed by the fact that, at the base of the hill of Cannar, was formerly a famous shrine of the sun, consisting of the universal symbol of that luminary formed by nature upon the face of a great rock. Ulloa describes an ancient Peruvian temple, situated on a hill near the town of Oayamba, perfectly circular in form, and open at the top. It was built of unburnt bricks, cemented together with clay.—The most wonderful monuments of Peru, however, are those at Tia Huanaco, on the shores and on the islands of Lake Titicaca. Their origin is lost in obscurity, and they are supposed, by M. d'Orbigny, who has carefully investigated, and given the world drawings of them, to have been the work of a race anterior to the Incas, denoting, perhaps, a more advanced civilization than the monuments of Palenque. They have been described by a number of the early writers, commencing with Pedro de Oeiza, one of the followers of Pizarro. M. d'Orbigny speaks of them as follows: "These monuments consist of a mound raised nearly a hundred feet, surrounded with pillars—of temples from 600 to 1,200 feet in length, opening precisely toward the east, and adorned with colossal angular columns—of porticoes of a single stone, covered with reliefs of skilful execution, though of rude design, displaying symbolical representations of the sun, and the condor his messenger—of basaltic statues loaded with base-reliefs, in which the design of the carved head is half Egyptian—and lastly, of the interior of a palace formed of enormous blocks of rock completely hewn, whose dimensions are often 21 feet in length, 12 in breadth, and 6 in thickness. In the temples and palaces, the portals are not inclined as among those of the Incas, but perpendicular; and their vast dimensions, and the imposing masses of which they are composed, surpass in beauty and grandeur all that were afterward

built by the sovereigns of Cuzco."—As already observed, most of the monuments of antiquity in America, seem to be the ruins of temples, places of worship, or edifices in some way connected with the religion and superstitions of their builders. Throughout they sustain many and obvious resemblances, consisting of elevated platforms, or truncated pyramids, ascended directly by broad flights of steps, or circuitously by winding paths; they scarcely differ except in the materials of which they are constructed, or the greater labor and skill displayed upon them. The builders of the temple-mounds of the Mississippi valley seem to have been governed by the same principles which controlled the architects of the majestic *teocallis* of Mexico; their ruder structures being only the evidences of their ruder or earlier state. Instead of being faced with stone, elaborately carved with the symbols of their religion, the green turf covered the high places of the mound-builders; they ascended them by graded avenues or winding paths, not by broad and imposing stairways, and the wooden temple roofed with bark, supplied the place of the massive edifices which still rear their crumbling, spectral fronts amidst the forests of Central America. The features of resemblance between a large part of the monuments of America and many of the most ancient of those of the old world, early attracted the attention of the philosophical Humboldt, who seems to have been completely impressed with their identity, yet with characteristic caution, unwilling to follow the connections to their ultimate results. In contemplating this he exclaims, "What striking analogies exist between the monuments of the old continents and these of the Toltecs, who, arriving on Mexican soil, built several of these colossal structures, truncated pyramids, divided by layers, like the temple of Belus at Babylon. Where did they take the model of these edifices? Were they of the Mongol race? Did they descend from a common stock with the Chinese, the Hiong-nu, and the Japanese?" That the practice of erecting these colossal, montiform temples was necessarily derivative, cannot be admitted. Such a deduction does not logically follow from the fact of resemblances, however striking. The primitive temples of every people on the globe seem to have been constructed much upon the same plan, and consisted of great enclosures of earth or upright stones, often, if not always, symbolizing in their forms the leading conceptions connected with the worship to which they were dedicated. The primitive altars, or shrines of the heathen gods, corresponded in rudeness and size with their vast open temples, and, like them, sustained everywhere a general resemblance. This resemblance, to a certain degree, may be regarded as accidental, inasmuch as an eminence or high place would naturally suggest itself as the most fitting spot whereon to render up homage to those superior powers which were supposed to dwell above, in the skies, or amongst the

stars. It may also have a degree, from the very generation that mountains as abiding places of the gods. Hindoo Pantheon dwelt on Meru; the gods of Persia; the Greek Jove thundered the Scandinavian divinities with their presence. Ararat, Zion, and Olivet, are in holiest traditions of both. The sacrifices of Balak, made on hill-altars. Solomon "high places" around Jerusalem the 10 tribes seceded from Rehoboam, they resumed the Profane history is full of ex attachment of the ancients purposes of worship and viewing the flight of Hector Achilles, is represented by thus to the piety of the fugi

The thigh of many an ox to n
On heights of pointed Ida; of
On highest place within the c

Impressed with this venerat and hills, we can easily un primitive nations came to c within their cities and sac imitation of them. "When aters," says Faber, "in the c grations, happened to occu they would be precluded, fro place, from solemnizing their a hill; therefore if they wished must supply the deficiency. T either by throwing up a large or building a temple in the fo which should rise conspicuou rounding plain; and, when th established, it would not unf ried into countries where it superfluous." That these co merely speculative is establis direct evidence. The pyrami tures of Hindustan are expres studied transcripts of the sac diversity of their forms resu diversity of opinion as to the mountain. It is represented cated or otherwise, but usu pyramid of seven stages. M and other forms are scattere upon which images and altars on which the gods were in These are called *Meru-eringas*. Within them are often deposit which are supposed to inves literal presence of the god. l are regarded as mythological was a universal belief that the son interred in a tomb or b chief place of abode after deat posed the actual presence of a by depositing in his shrine, w.

or montiform altar, some relic, a tooth or bone, or even a hair, "like that which grew on the forehead of Buddha." The antiquity and confidence of this belief may be seen in the *Helena* of Euripides, in which Menelaus thus addresses Theonoe, daughter of Proteus:

Thus will I at thy father's barrow speak,
O! sire, who dwellest within this stony mound.

Electra, in the tragedy of Sophocles, bearing her name, speaks in one of the choruses as follows:

Niobe, thee I honor as a goddess,
That in this stony taphos,
Ah! ah! still weepst!

That the sacred edifices of America, or at least of Mexico, were built with reference to these ideas, is supported by facts as well as by analogy. Nezahualcoyotl and Nezahualpilli, kings of Tezcuco, reared a temple in honor of the Supreme Unity, in which no sacrifices were permitted except the burning of incense. This temple was of nine stages, the number symbolizing the nine heavens which the Mexicans supposed to intervene between earth and the abode of the Supreme God. "Upon its summit," says Boturini, "was erected a dark chapel, or shrine, painted within of the finest blue, with cornices of gold, dedicated to *Tloque Nahuaque*, the One who has his seat above the heavens." "In China," says Humboldt, "two thousand years before our era, sacrifices were offered to the Supreme Being, *Chan-ty*, or 4 great mountains, called the 4 *Yo*. The sovereigns finding it inconvenient to go there in person, caused eminences to be erected, by the hands of men, near their habitations, whereon to practise their devotions." In memory of the mighty dead, long before there were such edifices as temples, the simple sepulchral heap was raised, upon which sacrifices were made, and libations poured. Hence, and not unnaturally, many of the early heathen structures for offerings to the gods were erected upon tombs of this description. The sanctity of the Acropolis of Athens was due, in its origin, to the sepulchre of Cecrops; and probably, without this leading cause of veneration, the numerous temples by which it was afterward covered would never have been built. On this account it happens that ancient authors make use of such words in designating the temples of the gods, as in their original meaning imply nothing more than a tomb or sepulchre. That artificial high-places, designed for sacred uses, were constructed on the principles here laid down cannot be disputed. In respect to their form, however, there is considerable difference of opinion. While it cannot be denied that those of Hindostan, for instance, were built to conform in shape to the fabled Meru, it is contended by some that the type of all is to be found in the tower of Babel, and that the Babylonian temples, as well as the pyramidal edifices of India and America, were but traditional transcripts of the great structure on the plain of Shinar, the central point whence radiated all the families of the earth, and the

nations of every continent. The discussion of these questions is, however, foreign to our purpose. It is enough to know that the practice of erecting such structures is of high antiquity, originating at a period when man had made the first refinements in the accessories of his worship. "Immense pyramidal piles," observes Sir R. O. Porter, "seem to be the peculiar marks by which we may discover at least the sites of the earliest settlements of mankind." But we are not compelled, therefore, to accept resemblances, nor even identities in respect to their form or adornment, as involving connections, recent or remote, between the people by whom they were erected; since, in the language of the philosophical Warburton, "it is an old, inveterate error, that a similitude of customs and manners, among the various tribes of mankind most remote from each other, must need arise from some communication; whereas, human nature, without any help, will in the same circumstances exhibit the same appearances." The forms in which men's ideas and conceptions are manifested, must always be much the same.

AMERICAN RIVER, in N. central California is formed by the union of its N. and S. forks near the W. boundary of the county of El Dorado, whence it flows S. W. between the counties of Placer and Sacramento falls into Sacramento river near the city of Sacramento. For about 6 miles it has been rendered navigable for small steamers. The north fork, considered by some as the true American river, rises among the hills at the base of the Sierra Nevada, flows W. S. W. forming the boundaries between Placer and El Dorado counties for 100 miles, and unites with the S. fork 80 miles above the city of Sacramento. The S. fork flows from Bonpland lake through El Dorado county, and forms part of the division between the counties of Sacramento and El Dorado. These streams pass through one of the principal gold mining districts.

AMERICANISM, a peculiar form of the English language, used in the United States. In all parts of the world, it has been observed that where a great number of people, inhabiting a large territory, speak a common language, they do not all use it in the same manner; but the inhabitants of different districts use different dialects. In accordance with this rule it might reasonably have been expected that there would be variations in the English language, as used in the United States, from the standard of the mother country. There were peculiarly strong influences in America to cause variations; such as the thinness of population, the novelty of numerous objects, of the mode of life, and of the system of government, the vast influx of persons speaking the languages of continental Europe and Africa, intimate intercourse along the frontiers with the red men, the want of a metropolis, a court, and permanently wealthy families which might serve as authorities, and the adoption by newspaper editors of the slang and low words of the multitude. But there

have also been very strong influences at work to protect the English language in America from variations. These influences have been a more extensive and thorough popular education than that of any other country, the almost universal habit of reading newspapers and books, an intercourse between distant districts by travelling, unequalled in any other part of the world, and the extensive use of dictionaries as books of reference in regard to the proper use of words. The consequence is, that there is more uniformity in the English language as spoken in the United States than in the tongue of any other people equally numerous; every American can with ease understand every other one; and it may safely be said that as a people the Americans speak English better than the English themselves. But the standard of the correct language still remains in the use of the learned and educated people of England, whose noble literature and polished society possess an authority which the Americans have not yet been able to equal.—Americanisms are of various kinds, viz.: First, new words, such as *sparrow*, *township*, *caveau*. Secondly, old English words in new meanings, as *block*, meaning the land or houses inclosed between four streets in a town or city; *realize*, meaning to conceive as actual; and *section*, meaning a square mile of land. Thirdly, words which were provincial in England adopted in general American use, as *wilt* for *with*. Fourthly, words which have retained in America the meaning they had in England several hundred years ago, while in the latter country the meaning has been changed. The word *sick* is an example of this. Fifthly, words preserved in American use, which have become obsolete in England; such as *tarry*, *freshet*. Sixthly, new methods of pronunciation, such as *ew* and *u* like *oo* in *constitution*, *newspaper*. Seventhly, new methods of accentuation, as *epicurean* instead of the English *epicurean*. Subjoined we give a list of some of the most noteworthy Americanisms, all of which are occasionally and most of them frequently used in American books and newspapers, and in the conversation of intelligent and educated men. It deserves to be remarked that many Americanisms current in the Southern, Western, and Middle States, are not used in New England, where the language, at least as written, approximates more closely to that of the mother country. In Canada the usage is still nearer to the England standard.

Advantage, used as a verb instead of profit.

Ambition, used as a verb instead of aspire.

Approbate, used instead of approve.

Autumn, meaning the months of September, October, and November, whereas, in England, that word comprises August, September, and October.

Bad, used in the sense of ill.

Baggage, used to signify the trunks, boxes, valises, clothing, &c., of a traveller. The English say *luggage*, and consider baggage pretentious.

Balance, meaning remainder; for example, "Two of the professors were dismissed, but the balance were retained."

Board, always used to signify all kinds of boards. In England pine and fir boards are ordinarily called "deals."

Bogus, meaning counterfeit, false, fraudulent.

Border, in the sense of a greensward, bordering on a walk in a garden or yard.

Boss, meaning an employer or superintendent of laborers.

Brush, for brittle.

Bread-stuff, much objected to by English writers, 20 years ago, but now admitted to be a good word.

Buggy, in the Western States, means a light four-wheeled wagon; in England it means a two-wheeled carriage.

Buncombe, used in the phrase to "speak to Buncombe," meaning to speak only to catch the applause or favor of the vulgar.

Bureau, universally used to the exclusion of the English "chest of drawers."

Calico, in America, means printed muslin goods; in England it means muslin goods generally.

Cannot is one word in America; in England it is two.

Caption, used in the United States to mean the heading of a chapter, section, or page, is not used in England.

Captive, as given by Webster and Worcester, in the sense of "take captive," is not recognized by English lexicographers.

Clever usually means good-natured, obliging, in America, and quick-witted or intelligent in England.

Conclude is used by Americans in the sense of determined, as, "I have concluded to go." Conclude, in Great Britain, is used to signify the formation of an opinion, not of an intention.

Conduct is used as a verb in New England, in the sense of conduct oneself; and that use is recognized as correct by Webster.

In this connection is a phrase much used in the United States, and appears to have been first brought into currency about 40 years ago, chiefly in New England periodical literature. English writers would prefer to say, "in connection with this subject."

Corn means only maize in the United States, in England it means grain generally.

County, in America, is ordinarily used after the proper noun used to designate particular counties, as "Pike county," &c. The English always say "county of," as "county of Lancaster."

Creek, in the most of the American states, means a small river; in England it means a small arm of the sea.

Creeole, properly means a person descended from European parents, born in some portion of America which belongs or did once belong to Spain; but the Americans often use the word to designate a native of Louisiana tinged with negro blood.

Dead-head, a person who gets something of commercial value without special payment or charge.

Declination, the refusal to accept a nomination to office.

Dry-goods, a general term used by Americans to signify such articles as are sold by linen drapers, haberdashers, mercers, drapers, hosiers, &c. The word "haberdashery," is almost unknown in the United States.

Dress, the word almost universally used by American women to designate their gowns.

Vegetable-egg, and sometimes egg-plant, is the American name for the fruit known in England as the garden egg.

Elect, in the sense of choose; as, "he elected to go to Europe."

Endorse, a word adopted from commercial usage to signify sanction, approve, confirm.

Eventuate, meaning to result in.

Expect, misused in application to past events; as, "I expect it was."

Fall, meaning autumn.

Fall, used instead of "fell;" as "to fall a tree."

Fancy, used as an adjective to signify fantastic, various. It is frequently used on signs of shops where assorted goods are sold, thus, "Fancy Store." Whatever is ornamental rather than useful, fantastic, adapted to gratify luxurious tastes rather than necessary wants, more elegant than substantial, figured as opposed to plain, may be described as "fancy." Thus there are "fancy silks," "fancy horses," "fancy women," "fancy men," &c.

Fishdealer, the American name for a fishmonger.

Fix, in England means to fasten or make firm; in America it means almost any thing in the way of putting in order, adjusting, mending, setting to rights, or making.

To have the floor is the American term for the English "to have possession of the house."

Forever is one word in the United States; in England it is two.

Freshet, meaning a flood, is not recognized in England as a good English word; but it was used several centuries ago by good English writers.

Frock is the name ordinarily given by American women to their gown, when they wish to be explicit. Ogilvie says frock is now used in England, "for a loose garment or shirt worn by men over their other clothes, and for a kind of gown, open behind, worn by females."

Fruit-dealer, the name generally given, in the United

States, to fruiterers, and green-grocers. Persons who hawk fish and vegetables about the streets are known as costermongers in England, but in America they have no such distinctive name.

Gallowases, meaning braces to support the trousers.

Gerrymander, a method of arranging election districts so that the political party making the arrangement will be enabled to elect a greater number of representatives than they could on a fair system of districting, and more than they should have in proportion to their numerical strength. The word was derived from the name of Elbridge Gerry, a signer of the Declaration of Independence, who was accused of being the first to practise this species of fraud on the rights of the people, while governor of Massachusetts.

Go-ahead is of American origin, and is used by Americans in cases where the British would say "all right."

Hack usually means a hackney-coach in America; in England it means a livery-stable horse.

Hardware merchant, or *hardware dealer*, is the American name for an ironmonger.

Help is frequently used, in the United States, to signify servant, servants, or service.

Hold on is a common American vulgarism for "stop." It is probably derived from the German "*halten*."

Homely means plain-featured, or ugly, in the United States; in England, it means pertaining to home, plain, simple, unadorned.

Improve is an Americanism for opening a farm on wild land, by cutting away the wood and brush, erecting buildings and fences, ploughing the ground, and putting it in order. The buildings and fences erected are styled improvements.

Kool-ala, an American word, of Dutch origin, to signify cabbage salad.

Levee, in the United States, is often applied to ceremonious reception parties given by official personages, whether in the morning or evening. In England, the word is restricted to morning receptions.

Lounger, Americanism for lounge.

Loin, frequently used in the United States as a verb, but seldom in England, where *lend* is the usual word.

Lobby, a verb, in America, means to attempt to exercise an influence on members of a legislative body by persons not members.

Lobby-members are non-members, who attend the sessions of a legislative body, for the purpose of influencing their conduct.

To lobby through is to get a bill adopted by such influence.

Locate, an Americanism, meaning to determine and designate the place of to settle in.

Log-roll is an Americanism, to designate a system of management by which a member of a deliberative or legislative body attempts to secure the adoption of a favorite measure, by inducing other members to vote for it, by assisting or promising to assist them in carrying their several pet measures.

Lot is the American term to designate a small tract of land, such as the subdivisions in towns. The English usually say "allotment."

Lumber means trash, in England. In the United States it means sawn wood, such as is intended for building and other mechanical purposes. Lumbering means making lumber; lumberman is the person engaged in making it; and lumber-merchant is he who sells it.

Mad is frequently used by Americans to signify angry; it is not so used by the English.

Mall is the word ordinarily used in the United States to express the ideas conveyed by "post" in England. Americans say "mail a letter," "send it by mail." In such expressions the English say "post."

Molasses is used in the United States to signify treacle as well as molasses. Properly, the former is the drainage from sugar in the process of refining; the latter from the sugar in the process of making. Molasses comes from the sugar plantations, treacle from sugar refineries.

Narrate has been objected to as a bad Americanism, by English authors, but it is used by English authors, is found in English dictionaries, and is of English origin.

Necessitate is an Americanism much objected to by English writers.

Night-fall, and *After-night*, are expressions common in the United States, but not used in England.

Notify, in the United States means to give notice to; in England it means to make known. The American says, "you must notify the drawer of the protest." The Englishman says, "the protest must be notified to the drawer."

Obligate, sometimes used by American writers, is objected to by English lexicographers as a low word.

Obnoxious is used much more frequently in the United States than in England, where offensive is considered preferable.

Older, and *oldest*, are frequently applied to persons by

Americans; elder and eldest are used by the English when speaking of persons.

On is often used by Americans in such phrases as, "he lives on a street," "he took passage on a steamboat," &c. The Englishman would use, "in," instead of "on."

Pantaloon is the common American name for trousers.

Pipe-laying is an Americanism, meaning fraudulent voting, and schemes or means to obtain fraudulent votes. The word had its origin in New York, at the time of the construction of the Croton waterworks. Some leaders of the whig party were charged with having made arrangements to bring a large number of men from Philadelphia, ostensibly to lay pipes for the water, but really to vote at an approaching election.

Plank is frequently used by Americans to signify board. A plank is a piece of sawn lumber an inch and a half or more in thickness, and 9 inches or more in width.

Plead, Scottishism for pleaded, preterite of to plead, is used in the United States, to the almost entire exclusion of the English word.

Politician, in the United States, means a person who busses himself with the management and contests of a political party. In England, it means a statesman. There is a similar distinction between the meanings of the word politics in the two countries.

Pond is used by the Americans to signify a pool or body of water smaller than a lake, with either natural or artificial banks. In England, "pond" implies that the water is confined by an artificial bank.

Posted-up is an Americanism for well-informed, thoroughly conversant with.

Quite, in the sense of "very," is in universal use by Americans, in such phrases as, "it is quite cold."

Railroad, railroad track, railroad depot, and railroad, are the American names for the English railway, railway line, railway station, and railway carriage. The American travels "in the cars;" the Englishman "by the rail." In the United States the iron horse is ordinarily a "locomotive;" in Britain he is an "engine."

Raise, in the sense of rear, cultivate, cause to grow, has been objected to as a bad Americanism by some English writers; but it is adopted without objection in Ogilby's Dictionary.

Rapids is an Americanism to signify that portion of a river where the current is so swift that the surface of the water is broken by short waves or by low falls.

Reliable is an Americanism for trustworthy. It has been adopted in the common use of England, but is not employed by careful writers.

Ride, in the United States, means riding either in a wagon or on horseback. The English restrict ride to horseback. In America, "to drive a carriage" means to hold the reins; in England it does not. Ride was formerly used by the English as it is now used by the Americans.

River is always placed by the English before the proper name when speaking of a particular stream, as "the river Thames." The Americans generally place "river" after the proper name; thus, "the Ohio river."

Rolt, to render turbid, a provincial word in England, is in general use throughout the United States.

Rooster is an Americanism for "cock," a male barn-door fowl.

School, in the United States, means a place where elementary instruction is given; in England it is often applied to establishments which would be called colleges in America.

Stot is the ordinary American word for ill, but is used by the English chiefly to express sickness at the stomach.

Sleigh is the American name for the English "sledge." The English go "sledge-driving;" the Americans go "sleigh-riding."

Span is an Americanism for pair, applied only to horses or mules. It is derived from the German *gespann*.

Stage is the American name for stage-coach; and it is sometimes but rarely used in that sense by the English.

Stall is used in the United States to signify stick fast; as "the horses are stalled;" "the wagon is stalled," &c.

Scoop is an Americanism, derived from the Dutch, meaning the steps at the entrance of a house, door-steps, a porch, a piazza, a platform of stone or wood before a door.

Store is the usual American name for a shop; and shop is rarely used except to designate a place where mechanical labor is done. Such signs as "boot store," "book store," "grocery store," "liquor store," "drug store," are always used by Americans to the exclusion of "book shop," &c.

Suspender is the ganteel, as gallowaes is the vulgar American name for the articles known in England as breeches.

Suspicion is sometimes used in American books and newspapers as a verb instead of suspect.

Talented has been objected to by many English authors as an unauthorized word, but it has been used by many classic authors. It is in universal use in the United States.

Tavern, in America, means a place where travellers are

liquors are sold, and entertainment (but not lodging) provided for parties.

Tenement-house is a word used in New York city to signify a house occupied, or built to be occupied, by a number of poor families or tenants.

Ticket is used by Americans in many ways unknown to the English. Politically it means a list of candidates at an election. "Straight tickets," "split tickets," and "mixed tickets," are unknown in the fast-anchored Isle. When an American engages a passage on a railroad, he purchases a ticket; the Englishman is booked at the box-office. The American purchases a "through-ticket" or a "way-ticket;" the Englishman is booked for a portion or the whole distance of his intended journey.

Transient, often used by Americans in such phrases as a "transient person," meaning a person staying at a place for a short time, a stranger, a traveller, is not used in that sense in England.

Transpire, in the sense of "happen," or "be done," is a very common Americanism.

Venison, in the United States, means deer meat; in England, it is applied to wild meat generally.

Waggon, or *wagon*, according to the usual American spelling, is frequently used in the United States as a verb. Thus, "the goods were waggoned across the mountains."

Waiter is a very common American name for servants, particularly in hotels, boarding-houses, and eating-houses.

What for a is frequently used by Pennsylvanians instead of "What kind of a," in asking questions. It is a literal translation of the German idiom, "*Was für ein*."

Wharves is the American, as *wharfs* is the English, plural of wharf.

Will is generally used by the natives of the Southern, Western, and Middle States, in the first person, instead of shall, when they merely wish to express an expectation.

Woode is the common American name for what the English term "a wood."

Advocate, *notice*, and *progress*, used as verbs were once considered as Americanisms, but have lost that character by adoption in England.

Two vocabularies of Americanisms have been published; one at Boston by John Pickering in 1816, and the other at New York by John Russell Bartlett in 1848. Pickering's book was small, and contained only the Americanisms current in New England at the time he wrote, since which time many new ones have been adopted. Bartlett's work is more extensive and better, but is far from containing a complete list of Americanisms. Indeed, such multitudes of slang words are made every year, and circulated by careless or flippant writers, that if they were all collected they might before long equal in number the 60,000 provincialisms of England. Fortunately they are generally used with a knowledge of their vulgarity, and many of them are forgotten almost as easily as they are coined.

AMERIGO VESPUCCI. See **VESPUCCI**.

AMERSFOORT, a town of the Netherlands, in the province of Utrecht, with a port on the river Eem, about 10 miles from its mouth. It has manufactories of cotton and woollen stuffs; an industrial school, Latin school, and court of primary jurisdiction. Corn and tobacco are cultivated very extensively in its vicinity, in which and dried herrings a brisk trade is carried on. The population numbers 18,000.

AMES, EDWARD, a bishop of the Methodist Episcopal church in the United States, born at Athens, Ohio, in 1806. After receiving his education in the Ohio university, he was for 8 years instructor in a college in Illinois. He was licensed to preach in 1830, was soon after assigned to the Indiana conference, and ordained successively a deacon and an elder. He took

held in Baltimore in 1840, and in 1842 officiated as chaplain to a council of Choctaws, being the first chaplain ever elected by an assembly of Indians. From 1844 until 1852, when he was made a bishop, he travelled as presiding-elder through various districts of Indiana.

AMES, FISHER, an American orator, statesman, and political writer, was born in Dedham, Mass., April 9, 1758, died in the same place July 4, 1808. His father, who was a physician, and a man of skill in his profession, and of wit and spirit in his conversation, died in 1764, when his celebrated son was but 6 years old. But his loss was in some degree supplied by the energy and good sense of his widow, who, discerning the early promise of her youthful son, would permit no adverseness of circumstances to prevent his receiving the best education the country then afforded. He entered Harvard college at the early age of 12, and after passing creditably through its course, took his degree in 1774. His youth, and the disturbed state of public affairs, and the narrowness of the family means, delayed for several years his entrance into the profession of the law. During this interval, however, he was busily educating himself for his future eminence by the assiduous study of the Latin and English classics, with the spirit of which his mind was thoroughly imbued. In 1781 he was admitted to the bar, and began practice in his native town, and soon began to attract attention as a forensic orator of unusual eloquence. But it was his political essays, which appeared in the Boston newspapers, under the signatures of Brutus and Camillus, that first made his great abilities generally known. They were lessons of practical wisdom, such as the unsettled state of public opinion and feeling at that period of transition demanded, conveyed with all the charms of a pure, energetic, and lively style. When he was known to be the author of these essays, he entered at once into relations of private and political intimacy with the leading men of his own state, and elsewhere, who were afterward the prominent federalists of the Washington school. He was a member of the convention for ratifying the federal constitution in 1788, and made himself conspicuous by the zeal and eloquence with which he recommended its adoption. When the federal government went into operation, Mr. Ames was elected the first representative of his district, which then included Boston, in congress. He remained in congress during the 8 years of Washington's administration, and fully maintained the reputation he carried thither with him. His readiness in debate and the splendor of his set speeches placed him in the very first rank of parliamentary orators. At the close of his great speech on the appropriation required for the execution of Jay's treaty with Great Britain, a member of the opposite party moved an adjournment, on the ground that the house was not in a state of

mind to dwell calmly on the question when fresh from the excitement of its eloquence. His parliamentary labors were sometimes interrupted, and always made more arduous, by the ill state of his health—the seeds of pulmonary disease having early developed themselves in his constitution. At the close of his fourth term, Mr. Ames left congress and returned with delight to the labors of his profession and to the pleasures of domestic life. His interest in public affairs, at that most excited period, was manifested by fresh essays in the newspapers of the day; but he took no immediate part in politics and accepted no office, excepting that of executive councillor under the administration of Governor Sumner. On the death of Washington he pronounced his eulogy before the legislature of Massachusetts, by their appointment. The gradual failure of his health compelled Mr. Ames soon to withdraw from the active practice of his profession, and he spent the last years of his life in a truly philosophic retirement, such as might well round the days of a great orator and statesman. He was most happily married in 1792, to Frances, daughter of John Worthington, of Springfield, and in the occupations of domestic life, the superintendence of his farm and orchards, the study of good literature, and the society of a brilliant circle of admiring and loving friends, his life wore away peacefully and happily. The chief drawback of his satisfaction was found in the gloomy forebodings as to the future of his country and the success of the experiment of republican government, which he felt in common with most of his school of politics. He met his death, which encountered him in the prime of his life, with calmness and dignity. The inroads of his disease were of the most gradual description, and he died on the morning of the 4th of July, at the age of 50. A public meeting was called in Boston, as soon as the news of his death arrived, and arrangements made for giving him the mournful compliment of a public funeral. The funeral ceremonies took place in Boston, and a discourse was pronounced over his remains by Samuel Dexter, his personal, professional, and political friend of many years. He lies buried in the churchyard of the town of Dedham, where he was born and died. The works of Fisher Ames were collected and published in one volume soon after his death, with a memoir written by the Rev. John Thornton Kirkland. An enlarged edition, in 2 volumes, appeared in 1854, edited by his son Mr. Seth Ames, of Cambridge, Mass. The first volume of this edition is composed of his letters, and they add to his former reputation that of one of the liveliest, wittiest, and most graceful of letter-writers. His reputation as an orator and writer is firmly established, and will extend itself with the growth of our literature and the extension of the English language. His orations, his essays, and his letters, are of the highest excellence in their several departments, and

must ever remain a component part of American and of English literature. The exuberance of his imagination, displayed in the multitude and splendor of his metaphors and illustrations, is sometimes, perhaps, a little excessive, and almost oppresses the mind, notwithstanding their felicity and appositeness. But if this be a fault, it is one which only a man of genius can commit, and one that we readily forgive. In private life, Mr. Ames is described by those that knew him best, as one of the most charming and fascinating of companions. His appearance was attractive, his manners gentle and prepossessing, the play of his wit and imagination brilliant and incessant. Many of his *bons mots* have passed into proverbs, and are in the mouths of multitudes who know not whence came the terse epigrams they use. His private character was absolutely without spot or blemish. None such was ever whispered of him by his bitterest political enemies in the heat of the most furious partisan excitement. It might be said of him, as Lord Chesterfield wrote of the elder Pitt, "his private life was stained by no vice, and sullied by no meanness." He was an example to all time of a man of rare genius and wit, who never perverted his great faculties to purposes of selfishness or sensuality, but dedicated them entirely to the promotion of public prosperity and of private happiness.

AMES, JOSEPH, born at Yarmouth, England, Jan. 28, 1689, and died Oct. 7, 1759. He wrote a work entitled "Typographical Antiquities," being a historical account of printing in England, with some memoirs of our ancient printers, a valuable compilation, and made more so by the subsequent additions of Herbert and Dr. Dibdin.

AMES, NATHAN P., a skilful machinist, born in 1808, died in 1847, for many years engaged in the manufacture of cannon, swords, edge tools, and various machines, at Chicopee Falls and Cabotville, Mass. He was less remarkable as an inventor than as a man of great practical ability, and possessed of singular insight into the capabilities of any subject within the range of the industrial arts that came under his notice. Many of the inventions of merely ingenious minds, which seem at first sight to be very wonderful, prove on trial to be nearly useless, because their scope is so limited. Mr. Ames possessed a clear judgment that enabled him, on proper examination, to decide with unerring skill on the practical working results of a machine. No matter how much any thing might be commended, if he saw that it was practically of little value, he boldly expressed his opinion. His studies in the mechanic arts chiefly led him to the examination of the chemical properties of metals in all their combinations, and his researches led him to improve many branches of art which at the time of his entering business were, in this country, but in their infancy. This was the case in a great degree with edge tools and cutlery. In

1829, he commenced the cutlery business at Chicopee Falls with 9 workmen, and in the following year contracts were commenced with the United States government for furnishing swords. In 1834 the Ames Manufacturing Company was incorporated, and N. P. Ames appointed agent. In 1840, he went to Europe in company with a board of officers of the United States ordnance department, to visit foreign armories, and acquire information in regard to tools, cutlery, and improvement in arms. During the last 2 years of N. P. Ames' life, his brother assumed the active duties of the establishment. Under his care the Ames Manufacturing Company has grown into one of the most important corporations in the United States. The number of hands now employed is about 800, and the works from small beginnings have grown in magnitude until they now cover a vast extent of ground. The manufacture of gilt and plated ware, established in 1851, alone occupies 100 hands. In the machine shops all kinds of massive castings may be seen being put together for cotton manufactures, &c.; heavy tools are also made, as well as numbers of the horizontal turbine wheels which are now coming into extensive use in large factories and workshops in place of the old-fashioned wooden overshot wheels, particularly where the water power is not heavy. The sword department occupies about 40 hands, and the Ameses have supplied the United States government with swords since the year 1830. In 1836 the bronze foundry was erected, which has become the most famous in the United States. Since its erection nearly all the brass guns made for the American army have been cast at this establishment. The company is now engaged in manufacturing 12-pounder and 32-pounder guns, to throw either solid shot or shells, and so arranged as to fit the same gun carriage. They also make light howitzers, which can be carried on the back of a horse or mule, and are intended for mountain service. But this foundry has become far more widely known from its connection with the fine arts. Three colossal statues bear witness to the capabilities of the establishment; one of these is of De Witt Clinton, and erected to his memory in Greenwood cemetery, Brooklyn; it was modelled by Brown, the American sculptor. Another, also by Brown, is the equestrian statue of Gen. Washington in Union square, New York. The weight of this statue is nearly 5 tons. The head and entire body of the horse was cast in one mould, the legs separate, and the figure of Washington in three pieces. The third statue, and the one most recently cast, is that of Franklin, erected in School street, Boston, from a design by Richard Greenough. A great tribute to American mechanical skill has been paid through this establishment by the government of Great Britain. It is well known that for many years past, the arms in the national armories at Springfield and at Harper's Ferry, have been made entirely by machinery,

and constant improvements have been in progress, while in many of the European states, England included, the old system of making muskets by hand was kept up, so that no two were alike. Discovering at length that our arms were far superior to their own, the British government, in 1854, sent out a commission, consisting of three officers, who engaged the Ames Manufacturing Company to build a complete set of the "stocking" machines; that is, all those employed in perfecting the stock of the musket from its rough state, as it is furnished by contract, independent of all the other machines, which are very numerous, for the barrels and metal work of the piece. These machines are now at the government armory in Enfield, near Woolwich, England.

AMES, WILLIAM, D. D., an English Independent divine born in 1576, died in Nov. 1638, was educated at Christ's college, Cambridge. In the reign of James I. he left the university in order to avoid expulsion for his nonconformity, and retired to the Hague, Holland, where he was hospitably invited to accept the chair of divinity of the university of Franeker in Friesland, which he filled satisfactorily for 12 years. He removed to Rotterdam, where he spent the rest of his days. He left many controversial writings against Cardinal Bellarmine, and against Grevinchovius and the Arminians. His *Medulla Theologia* was famous in its day.

AMESBURY. I. A post town, in Essex county, Mass., extending from the north bank of the Merrimac to the state of New Hampshire, about 40 miles north of Boston, and 6 north-west from Newburyport, has some extensive manufactories of flannel and satin. One company for making flannels has a capital of \$200,000; boots, shoes, leather, and carriages, are also extensively made. The total amount of the manufactures yearly, is \$500,000. About half the population of the town is engaged in mechanical labor. It is the home of the poet John G. Whittier, who is frequently called the bard of Amesbury. Josiah Bartlett, M. D., one of the signers of the Declaration of Independence, was born here, in 1729. Pop. 3,585. II. A market-town in the county of Wiltshire, England, formerly Ambrosebury or Ambresbury; it is of high antiquity, and has the remains of an abbey. The beautiful Amesbury house, built for the duke of Queensbury by Inigo Jones, is situated in it. Addison was born at Milston near it. Tourists who visit Stonehenge generally put up there. Population in 1851, 1,172.

AMESTRIS. I. The wife of Xerxes, king of Persia, notorious for the terrible revenge which she wreaked upon the person of her sister-in-law, Ardaynte, for the adulterous passion with which the latter had inspired her husband. To accomplish this revenge, she availed herself of a time-honored privilege, which on solemn occasions, imposed upon the kings of Persia the duty of granting any request their wives might

choose to make. Amestris requested to have Ardaynte put in her power, and had her nose, ears, eyebrows, tongue, and bosom (those attributes of her beauty which had captivated the tender heart of the amorous Persian) cut off, and her mangled remains devoured by dogs. Masistes, the husband of this unfortunate lady, yearned, in his turn, for vengeance, but before he could accomplish it, he was assassinated by order of the queen, who, moreover, in order to express her sense of gratitude to the gods for the success of her atrocious schemes, offered a sacrifice of 14 young Persian nobles, whom she caused to be buried alive. II. Another royal Persian lady, the supposed founder of the town of Amestris (Amasserah) in Paphlagonia, was a daughter of the king Darius and of Oxathra.

AMETHYST (Gr. *amethystos*, preventing intoxication, so named because it was supposed by the ancient Persians, that cups made of it would prevent the liquor they contained from intoxicating). It is crystallized quartz of a purple or bluish violet color, probably derived from a very small amount of oxide of manganese; or, according to Heintz, from a compound of iron and soda. It is employed in jewelry. The color is not always uniformly diffused through it; and like many other stones is less brilliant by candlelight. The name was used by the ancients for several other minerals, which had a similar color to the amethyst.

AMGA, a river of Siberia, which rises in the Yablonoi Krebet mountains, flows in a N. E. direction nearly 460 miles, and falls into the Aldan. At its passage through the village of Amginsk, where it is bounded on each side by steep rocks, upwards of 80 feet in height, it attains a breadth of 8,000 feet.

AMHARIO LANGUAGE. Amhara is a province of Abyssinia, including all that portion which lies between the Blue Nile and the Taccaze rivers, and having the Lake Tchad in the centre. The language of this province is spoken with some variations of dialect throughout Abyssinia, and a knowledge of it is therefore essential to an Abyssinian traveller. It is supposed to be a very ancient language, though the earliest mention of it is thought to be made by a writer about 120 years before Christ. A language called the Geez used to be spoken in Abyssinia, but the Amharic superseded it on the accession of Icon-Amlak, who removed his court from Axoom to Shoa, and surrounded himself by Amharic courtiers. Very little is known of the Amharic language, though the British and foreign Bible society have found means to publish first the New Testament (1829), and later, the whole Bible in that tongue. The Amharic is generally considered to be a branch of the Semitic family, and shows its principal affinity with the Arabic. It does not so much resemble the old Ethiopic Geez, which it has displaced, as does the Tigré, the provincial dialect of the northern province of Abyssinia.

AMHERST, a county in Virginia, bounded on the S. W. and S. by the James river, and on the N. by the Blue Ridge, was formed from Albemarle county in 1761. The surface is elevated and undulating. It abounds in fine scenery, of which the passage of the James river, through the Blue Ridge, is especially noted. Its area is 418 square miles, its soil fertile, and largely covered with forests and plantations; tobacco, corn, wheat, and oats, being its staples. In 1850 its real estate was assessed at \$1,889,671, and in 1856 at \$2,193,421, showing an increase of 16 per cent. Productions in 1850, 858,188 bushels of corn, 122,088 of wheat, 94,262 of oats, 948,261 pounds of tobacco, and 84,968 of butter. There were 24 churches, 250 pupils in the public schools, and 180 attending academies and other schools. Population in 1850, free whites 6,852, free colored 894, slaves 5,958, total 12,699.

AMHERST. I. A town in Hampshire county, Massachusetts, situated on a branch of the Connecticut, 82 miles W. of Boston; pop. 2,927. The inhabitants are chiefly farmers. In the N. part of the town, on Mill river, are several factories, where Kentucky jeans, wickings, sheetings, straw pasteboard and straw wrapping paper are made. There are also two tool factories in the place. About 20 years ago Amherst was celebrated for the beauty of the carriages at that time manufactured there. Amherst college was founded in 1821. Its projectors had prominently in view the gratuitous education of pious young men for the ministry, and the charity fund, devoted exclusively to this object, now amounts to about \$50,000, and pays the tuition fees of between 40 and 80 students. The managers of the institution had to struggle against many discouragements at the outset, and not a dollar was appropriated in its aid from the state treasury during the first 25 years of its existence. The Rev. Zephaniah Swift Moore was the first president of the college. He died in 1823, and was succeeded by the Rev. Heman Humphrey, who retained the office until 1845, and performed the most important services to the institution, having safely carried it through the most perplexing embarrassments. The Rev. Edward Hitchcock followed him, and resigned in 1854, when the present incumbent, the Rev. William A. Stearns, was inaugurated. Of late years, the college has received many munificent donations. Samuel Williston of Easthampton (whose name it is contemplated by the trustees to bestow upon the institution) has given upward of \$60,000 toward its support. The state has lately appropriated \$25,000, one-half to be devoted to the payment of its debts, and the remainder to the endowment of the "Massachusetts Professorship of Natural History." In 1847, the sum of \$3,000 was subscribed by 40 residents of the state, and a handsome edifice erected to be employed as a cabinet of natural history, and an astronomical observatory. The

zoological and conchological collections have been spoken of in the highest terms by Prof. Agassiz and other eminent scientific authorities. The library, a fine building, was constructed in 1858, of Pelham granite, and contains some 11,000 volumes. The whole number of students who have been educated here is 1,147, of which 479 entered the ministry. At present the number of instructors in all departments is 14. No. of undergraduates, 218.—The Mount Pleasant classical institution for boys was founded in 1827, occupying a beautiful site about three-quarters of a mile N. of the college ground. It had a great success for a time, but was given up after a few years. An academy was incorporated in this town in 1816, of which Noah Webster, who then resided in Amherst, was one of the original trustees. II. A fortified town in the further India at the mouth of the Martaban river, built by the British in 1826, on the termination of the Burmese war. It is 100 miles from Rangoon and 80 from Maulmain. The harbor is spacious and secure with 8 fathoms at low neap tides. There is abundance of lumber and good water. It is principally inhabited by Burmese, who have been invited there by the liberal nature of the British rule.

AMHERST ISLANDS, a small group lying W. of the extremity of the Korean peninsula, and distant from it about 60 miles.—There are other islands of the same name off the S. W. coast of Aracan, between the isle of Cheduba and the mainland; and a dangerous ledge in the Tong Hai or Eastern sea, off the coast of the Chinese province of Kiang, is called the Amherst Rocks.

AMHERST, JEFFERY, lord, a field-marshal in the British service, born in Kent in 1717, died Aug. 8, 1797. At the age of 14 he entered the British army, was made colonel in 1756, and soon after major-general. In this capacity, in conjunction with Generals Wolfe and Prideaux, he made the entire conquest of the French strongholds in Canada, a triumph which was completed on Sept. 8, 1760, and for which he received the thanks of the house of commons, and the order of the Bath. He was soon after appointed commander-in-chief of the British forces in America. In 1768 he was appointed governor of Virginia, and in 1770 governor of the island of Guernsey. In 1776 he was elevated to the peerage, with the title Baron Amherst of Holmesdale. In 1787 he received a patent as Baron Amherst of Montreal, and in 1798 was appointed to the command of the army. In 1795 he was superseded by the duke of York; at the same time he was made a field-marshal.

AMHERST, WILLIAM PITT, earl of, born Jan. 14, 1778, died Feb. 18, 1857. He was the ambassador extraordinary of England to China in 1816—a mission which was in every respect unfortunate. He was permitted after great demur to travel into the interior. On his arrival at Pekin he was required to conform to the usual ceremonial of an approach to the emperor, and on refusing to submit to ceremonies which

he considered degrading, he was refused admission to the emperor's presence. He quitted China in the frigate *Alceste*, which was wrecked off the island of Pulo Leal, and Lord Amherst escaped to Batavia. From Batavia assistance was sent to the island, and the crew was rescued. He was afterward appointed governor-general of India, which office he retained until 1826. He was created an earl on his recall.

AMHERSTBURGH, a garrisoned town in the county of Essex, Canada West, on the river Detroit, 5 miles above its entrance to Lake Erie, and 225 W. S. W. from Toronto, in lat. 42° 7' N. long. 83° 9' W. The town has a population of 1,800, and contains a court-house, 5 churches, a market-place, reading room, 8 insurance agencies, a newspaper office, a good hotel, several manufactories, and some 15 stores.

AMHURST, NICHOLAS, an English political writer and poet of the 18th century, died in 1742. He was born at Marden in Kent, and studied for a time in St. John's College, Cambridge; from which having been expelled on account of disorderly conduct, he immediately directed the shafts of his satire against it, and published two works, one of verse and one of prose, in which he ridiculed its learning, discipline and professors. He subsequently published poems both on sacred and profane subjects, one of which entitled the "Convocation" was in ridicule of the antagonists of the bishop of Bangor. He is chiefly known now for the share which he had in writing the "Craftsman," a violent political journal directed against the administration of Walpole. His party came into power in 1742, but he was entirely overlooked in the distribution of favors, and his death having been hastened by his disappointment, he was buried by the charity of his friends.

AMIOCE, or AMIOT (Lat. *amictus*, girt around), a vestment worn by priests in the Roman Catholic church during the celebration of mass. It consists of a square linen cloth, tied over the neck and shoulders, and was originally used as a protection for the throat. After the general adoption of the cravat had rendered the amioce unnecessary as a neckcloth, it was retained for the significance which it had acquired as an emblem of the cloth wherewith the Saviour was blindfolded by the Jews the night before his crucifixion.

AMIOI, GIOVANNI BATTISTA, an Italian savant, born at Modena in 1786. He studied natural history at Bologna, and mathematics at Modena. He became professor of mathematics at the college of Panaro, and for some time general inspector of education in Modena, where, in 1881, the grand-duke of Tuscany appointed him director of the Florence observatory, as successor of the celebrated comet discoverer, Luigi Pons. This office he holds to this day, publishing every year the result of his astronomical observations, at the same time contributing important papers on natural history to the *Memorie della Società Italiana*. Science is es-

pecially indebted to him for his improvement of the telescope, of several microscopes, and of the camera lucida, invented by Hooke and Wollaston. He seems to have from his earliest life devoted much attention to optical instruments, and before he was 20, he made a telescope of a mixture composed by himself. In 1827 he made dioptric microscopes, which are sold with his name attached, and notwithstanding the improved microscopes of Oberhäuser, are still in great favor. He is assisted in his labors by his son, Vincenzo Amici, who is professor of mathematics at the university of Pisa.

AMICO, BERNARDO, a Sicilian Franciscan monk, born at Gallipoli, was in 1596 prior of that religious order in Jerusalem. In 1601, on his return to Italy, he published an account of his observations, principally interesting in an artistic point of view, as he gives drawings of all the sites and monuments in the Holy Land. This curious book is called *Trattato delle piante e immagini de' sacri edifizii di terra santa, designate in Gerusalemme, &c.*, and was published first at Rome, and afterward at Florence in 1620. The book derives additional value from the fact that the engravings are executed by the celebrated Callot.

AMIOU, a South American lake, in the province of Cumana, Venezuela, on a plateau between the Rupununy and Tocoto rivers. In the dry season it is scarcely 8 miles long. During the time of Queen Elizabeth, the vicinity of this lake was the El Dorado—"the great lake with golden banks," and near it was supposed to stand the wonderful imperial city of Manoa, which Sir Walter Raleigh and his ill-fated followers set out to discover.

AMIDSHIPS, the middle of a ship, either with regard to her length or breadth. To strike amidships is to strike a vessel in the centre, as the American bark Adriatic struck the French steamer Lyonnais in the winter of 1856-57.

AMIDAS, PHILIP, was born in Hull, in the year 1550, descended from a family in Brittany, members of which had been for nearly a generation domesticated in England. The precise date of his death has not been ascertained. A sailor by profession, he commanded one of the two ships composing the first expedition sent by Queen Elizabeth under command of Arthur Barlow to North America. They touched at the Canaries, the West Indies, and Florida, and then made their way northward along the coast. On July 13, 1584, they entered Ocracoe inlet, and landed on Wocoken Island. Barren and desolate as this part of North Carolina now is, the mariners thought it beautiful, and gave gorgeous descriptions of it. The people of the country were as kind and gentle as the scenery was lovely and luxuriant. On the return of Amidas and Barlow to England they reported their discoveries to Raleigh, who does not appear ever to have been on the North American continent, and from him the matter was imparted to Queen

Elizabeth, who called the new land "Virginia." Amidas was long after in the English maritime service, and went in charge of an expedition to Newfoundland a few years later. He died in England early in the reign of James I., but a few months before the decease of his illustrious patron, Raleigh.

AMIENS, an ancient town of France, capital of the department of Somme, 72 miles north of Paris, on the Paris and Bologne railway, and connected with the sea by the river Somme, which runs through the town, and beside being navigable to this point for vessels of 50 tons, affords by means of numerous canals water power for the various manufactures which make up the prosperity of the town. Population in 1853, 52,149. Amiens is supposed to have been in existence anterior to the invasion of Rome by the Belgians. Its ancient name was *Samarabriga*. It was in former times well fortified, but its fortifications are in ruins. It is noted for a fine cathedral, founded in 1220, finished in 1288; length 415 feet, breadth 182 feet, and spire 420 feet high. Among its other noted buildings are the hotel de ville, royal college, the chateau d'eau, and the bibliothèque communale, which contains 40,000 printed and 400 MS. volumes. Four hundred looms are employed upon the manufacture of cotton velvet alone, of which (velvet of Utrecht) 70,000 to 80,000 pieces are annually made. About 180,000 pieces of fine cassimere, with various quantities of serges, plush, druggett, cambric, tapestry, and divers other goods, are produced, giving employment to over 8,000 looms, and working up of wool alone 100,000,000 pounds per annum. There are also dye, soap, beet-root sugar, and paper works. Amiens was the birthplace of Peter the Hermit, and of Ducange and Delambre, two French authors of note. Here, too, during the struggle to gain possession of the Holy Land, the kings of France, England, Navarre, Aragon, and Bohemia, met for the purpose of arranging the plans for a new crusade. Here, finally, on March 25, 1802, was signed a treaty of peace between Great Britain and the French republic, known as the treaty of Amiens.

AMIOT, FATHER, a French Jesuit and missionary, born at Toulon in 1718, died at Pekin in 1794. In 1750 he sailed for Macao, from whence he proceeded to China, where he remained for the rest of his life. He familiarized himself with the Chinese and Tartar language and literature, and translated into French many Chinese and Tartar works. He also wrote a Mantchoo-Tartar grammar and dictionary, which was put into type by Didot, and brought out by Langles of Paris. Some of his translations have been issued separately by Deguignes, but the greatest part are contained in the celebrated memoirs on China, which were published at Paris in 1776. His treatise on Confucius is a valuable contribution to the data about the life of that great Chinese legislator, and his work on China is full of information, which forms a very important addition to the existing knowledge

about the celestial empire.—He was furnished with aids to his studies by the emperor of China, and has treated in various works the antiquities, literature, and arts of the Chinese. His researches were, until the recent labors of Staunton and Remusat, the most fruitful source of our knowledge on the affairs of China.

AMITE, a county in S. W. Mississippi, on the confines of Louisiana, having an area of 700 square miles. Its name is derived from the Amite river, which flows through the centre of the country. The river Homochitto runs past its N. W. boundary. The county is mainly occupied by cotton fields and forests; its surface is somewhat uneven, but the soil is fertile. Cotton, rice, Indian corn, and sweet potatoes, are the chief articles of export. The productions in 1850 were 7,847 bales of cotton, 880,917 bushels of corn, 111,385 of sweet potatoes, and 151,608 of rice. There were 16 churches, 1 newspaper office, and 685 pupils attending public schools. Liberty is the capital. It has a population of 9,694, of which 8,644 are free, and 6,050 slaves. —**AMITE**, a river rising in the south-west part of Mississippi, passes into the state of Louisiana, and reaches Ascension parish by a southerly course; it then turns and pursues an easterly course until it arrives at Lake Maurepas, into which it empties. It is navigable for small steamboats for a distance of 60 miles.

AMLA, an island of the Andreanov group, in the North Pacific ocean. It is about 40 miles in length, and 10 miles in breadth. The inhabitants subsist chiefly by hunting and fishing. The principal exports are otter, fox, and other skins.

AMLAI, one of the Aleutian islands, of the Fox group, the E. point of which is in lat. 52° 6' N. long. 172° 50' W.

AMLING, KARL AUGUST, a German engraver, born at Nuremberg in 1651, died in 1701. He studied at Paris under Poilly, at the expense of Maximilian II. of Bavaria, whose attention he had attracted, and on his return to Munich he became the engraver of the court, and acquired a considerable fame throughout Germany, where his engravings were very popular. —**WOLFGANG**, a German divine, born at Mûnsterstadt, near Würzburg in 1542, studied at Jena, Tübingen, and Wittenberg, and held various civil and ecclesiastical positions in different German villages and towns. He took an active part in the reformation, and belonged to Melancthon's party. In 1596 he assisted the princes George I. and Christian I. in introducing Protestantism into Anhalt, and was much beloved and respected for his religious fervor and the moral beauty of his life.

AMLWCH, a seaport town and parliamentary borough, on the island of Anglesea, N. Wales, which, from an insignificant little fishing village, has, since the discovery of the famous copper mines of Parys and Mona in 1768, become a place of considerable importance. The population of the borough is now 3,169. When first

discovered, and for many years, these mines yielded ore of the richest kind in large and pure masses; but of late years they have been on the decline, not more than a third of the people being employed, and in a few years more it is probable that they will be closed up altogether. Amlwch, in conjunction with Beaumaris, Holyhead, and Llangeni, return one member to Parliament.

AMMAN, a city of Syria, on the Zurka, an affluent of the Jordan. It was the capital of the Ammonites; but being rebuilt by the Greeks, was called by them Philadelphia. It is now in ruins, and its edifices serve as a halting place for caravans.

AMMAN, JOHANN KONRAD, a Swiss physician, born at Schaffhausen, in Switzerland, in 1669, died in 1724. He practised his profession in Haarlem, in Holland. In 1692 he published an essay, entitled *Surdus Loquens* (the deaf mute speaking), in which he gave an account of the results of his efforts in teaching a girl deaf and dumb from birth to articulate. He made no mystery of his process, but invited those who found any thing difficult or indistinct in his explanations, to apply to him, "who, according to the light granted him, will refuse nothing to any man." In 1700 he published another essay, entitled, "Dissertation upon Speech." These two works were of great value to Heinicke, Braidwood, and De l'Épée, who, at a late period, organized schools for the instruction of deaf mutes. —**JOER**, a Swiss artist, born at Zurich in 1589, died in 1590. In 1560 he left Switzerland, and established himself at Nuremberg, where he acquired fame, especially by his wood-cut illustrations of Reinecke Fuchs, Luther's Bible, Schoppen's Panoplia, &c. His engravings were also much admired.

AMMAR IBN YASIR, surnamed ABUL-YOKHDÂN, a celebrated Arab, of the tribe of the Ans, one of the companions of the Prophet, lived in the first half of the 7th century, and died at the age of 90, at the battle of Seffin, while he commanded the cavalry of Ali. He was one of the first converts to Mohammedanism, and was, according to Abulfera, saved from the martyr's death to which the fanatics of Mecca wished to consign him, by Mohammed himself, who, on happening to pass by when his friend was already surrounded by the flames, held his hand over the fire and thus miraculously saved Ammar, who from that time never left the prophet, followed him in his flight to Abyssinia, and stood by him until his death, when he took the part of Ali against Moawiyah, and subsequently, in 657 and 658, was engaged in the battle of Chameau. —**ABDALLAH** IBN SAÏD, a grandchild of Ammar, settled in Spain, and his numerous posterity was known in the province of Granada under the name of Beni-Saïd.

AMMIANUS, MARCELLINUS, a distinguished soldier and historian of the 4th century of the Christian era, was by birth a Syrian. In his youth he embraced the military profession, and served under Ursicinus, one of the most cele-

brated of the generals of Constantius. Ammianus accompanied the Emperor Julian in his expedition against the Persians. He ultimately settled at Rome, and devoted his latter days to the composition of his history. The period of his death is uncertain.

AMMIRATO, SORPIONE, an Italian writer, born at the Neapolitan town of Lecce in 1581, died at Florence in 1601. He wrote a book on the Neapolitan nobility, and essays on Tacitus, evidently in imitation of Macchiavelli on Livy, and some other books, some of which have been preserved in the library of the hospital of St. Mary, at Florence; but his claim to literary distinction chiefly rests on his "History of Florence," a work of considerable importance, which he undertook in 1570 at the instance of the grand-duke Cosmo I., of Medici, and which he was enabled to execute by the munificent patronage of Cardinal Ferdinand of Medici, who not only gave him a profitable prebend, but also offered him free board at his palace, of which privilege he shrewdly availed himself for the rest of his life.

AMMITOK, an island off the N. E. coast of Labrador, in lat. 59° 28' N. long. 68° W. It is about 75 miles S. E. of the entrance to Hudson's straits.

AMMON, or **AMON**, a deity extensively worshipped in ancient times in many countries of Africa and Europe. The Egyptians called him Amun or Ammin, the Greeks Zeus Ammon, and the Romans Jupiter Ammon. His most celebrated temples were at Thebes in Upper Egypt, in the oasis of Ammonium, and at Dodona in Greece. He was generally represented in the form of a ram, or as a human being with the head of a ram. This representation was of course symbolical, and meant probably that Ammon stood in the same relation to men as the ram does to the flock; that he was the guide, governor, and protector of the people. The best derivation of the name seems to be from the Egyptian word *amoni*, which signifies a "shepherd." But if we adopt this etymology, we should write the name Amon, and not Ammon.

AMMON, CHRISTOPH FRIEDRICH VON, one of the most remarkable Protestant theologians and pulpit orators among the Germans, was born Jan. 16, 1766, in Baireuth, and died in Dresden, May 21, 1850. He studied theology in Erlangen, in 1789 became professor of philosophy, and in 1792, professor of theology and preacher at that university. From 1794 to 1804 he was professor of the same branches in Göttingen, then until 1818 again in Erlangen, and from that time until his death, Protestant court preacher (the king of Saxony, though a Catholic, maintains at the same time a Protestant court church), vice president of the consistory, and afterward member of the ministry of worship in Dresden. In 1825 he accepted the old title of nobility, which his family had lost in 1640, together with their feudal estates, on account of their fidelity to Protestantism, and which the king of Bavaria had in 1824 restored to them.

Ammon was, together with Breitschneider, Paulus, Röhr, and other German theologians of minor mark, the father of what in German theology is called "Rationalism." In his principal work "Development of Christianity into the universal Religion," *Fortbildung des Christenthums zur Weltreligion* (4 vols. Leips. 1838-'40), he holds, that the Christian religion is perfectible not only in its external form as a church, but also in its substance and nature, and must be further developed, if it is to embrace and to bless the whole of humanity. Of course Ammon regards Jesus as a mere man, not as God the second person of the Trinity, although as a man who attained the highest scope and elevation, and so became intimately united with God. In the practical consequences of this opinion he is less bold and consistent than the other defenders of Rationalism, inclining, as he does, to the doctrines of hereditary sin, of divine grace, and of salvation by the latter. Striving to reconcile the supernatural origin and efficiency of the Christian religion with the facts and deductions of natural science, he showed a certain vacillation in his opinions, while he was constant only in the one great principle that reason and science are to teach the measure and rule, as well as the matter of religious truth. Though he was among the first to introduce the Kantian philosophy into theology, and to lay a great stress on the use of reason in matters of revealed religion, philosophy was his weak side; he was no systematic and comprehensive thinker. His real merits consist in his profound and varied knowledge of history, facts, and languages, and in a geniality and liveliness of conception and elaboration, which are seldom found combined in German scholars. As an expositor of the Bible, he was among the first to pronounce against a system of exegesis, which in the earlier period of rationalism, particularly by Semler's method, had become general, and which consisted in substituting modern thoughts for the conceptions of the biblical writers, and eliciting a modern sense from their words,—a sin against historical truth which was covered up by the theory expressly invented for that purpose of accommodation, maintaining that those writers knew better than they wrote, but had condescended to and participated in the common errors and opinions of their contemporaries, in order to be understood by them. Nice distinctions being, at that time, drawn among the rationalists between rational super-naturalism and super-natural rationalism, he called himself a follower of the latter school, according to which belief or faith (both are in German expressed by the same words) begins where science ends, and revelation may make up for the deficiencies of reason. This position being too much exposed to objections from the side both of believers and unbelievers, he was sometimes, as for instance by Schleiermacher in the dispute on "Harns's Theses," charged with duplicity; and his last great work, "The Life of Jesus" (3 vols. Leips.

1842-'44), was even ridiculed on account of its undecided position in regard to the later critical theories of Strauss, Bauer, Fenerbach, and the Tübingen school. As a pulpit orator he had no superior among his contemporaries, either in artistic polish or in richness of thought. His style was highly refined, his appearance was prepossessing, if not imposing. Among his other writings we may mention particularly, *Wissenschaftlicher Entwurf der christlichen Sittenlehre* (Scientific Outlines of Christian Ethics, 3 vols. Leips. 1828, 2d edit. 1838), his least objectionable work; *Anleitung zur Kanzelberedamkeit*, Instruction in Pulpit Oratory (8d edition, Erl. 1826), more naturalistic in the 1st and 8d, more super-naturalist in the 2d edition; *Entwurf einer rein biblischen Theologie*, Outlines of a purely Biblical Theology (2d ed. 3 vols. Göttingen, 1801-'02), *Summa Theologia Christiana* (4th ed. Leips. 1830), and his last work, *Die wahre und falsche Orthodoxie*, True and False Orthodoxy (Leips. 1849). Ammon took a prominent part in the various theological and church disputes which after 1817 occupied the attention of the great German literary community in a time of political dulness, and several of his writings belong to this class. He had the misfortune to see the theological system which he had during his long and active life represented entirely deserted by the great mass of his contemporaries, either for a consistent infidelity or for a thorough-going orthodoxy and pietism. His biography is contained in the work entitled *Ch. F. Ammon nach Leben, Ansichten und Wirken*, Leips. 1850.

AMMON, KARL WILHELM, a German trainer of horses and writer upon veterinary science, born in 1777 at Trakehnen in Prussia. After having studied at Berlin, he was employed in different equestrian establishments, where he gained a practical acquaintance with his art, and since 1818 has lived at Rohrenfeld, near Neuburg, on the Danube. He is the author of numerous works, the most important of which are a "Natural History of the Horse" and a "Complete Treatise on the Training of Horses."

AMMONIA. In its pure state this is a pungent gas of alkaline properties. To distinguish it from the solid or fixed alkalis, it is called the volatile alkali. The name ammonia is given to it from the temple of Jupiter Ammon, near which one of its salts, sal-ammoniac, was originally prepared. Dr. Priestley first obtained it in a gaseous state, and called it alkaline air. It is a compound of hydrogen and nitrogen—3 measures of the former to 1 of the latter, the product condensing in the combination to one-half the bulk of that of the two constituents. In appearance it is not distinguishable from common air; but its presence may be detected by its peculiar pungent smell, and is also made evident by the white fumes of hydrochlorate of ammonia, which float like smoke in the air, when a glass stopple or rod wet with muriatic acid is brought in contact with it. Yellow turmeric paper, moist-

ened, also gives evidence of its presence—being immediately changed to brown by its alkaline property. The change of color thus produced, however, is not permanent. As the volatile gas finally escapes, its effect also disappears. It turns vegetable blues to green, neutralizes the acids, and forms with them salts of definite character and crystallized structure. Ammonia is taken up by water with great avidity; and when absorbed is readily expelled from it by heat. At the ordinary temperature and pressure, water dissolves the third of its weight, which is equal to 400 or 500 times its volume; and the mixture diminishes in density according to the proportion of ammonia absorbed. This aqueous solution—the liquid ammonia of the shops—usually consists of pure alkali in the proportion of from 18 to 20 per cent. of its weight. Exposed to the air it rapidly loses its strength by evaporation of the gas.—Ammonia is produced in the juices of various nitrogeneous animal and vegetable substances in their putrefactive fermentation. It is given out in their decay, and passing into the atmosphere, is condensed by the aqueous vapor, and returned to the earth in rain-water, mists, and snow. It furnishes to plants the nitrogen they require, and is thus the principal valuable ingredient of the manures. Guano is a great repository of it. It was obtained in the form of muriate of ammonia (sal-ammoniac) in ancient Egypt from the dung of the camel. The shavings of horn have been used to prepare it, whence the name, spirits of hartshorn. It is given out in the destructive distillation of all bituminous mineral matters—coming over in an impure state, condensed in the aqueous vapors, and mixed with the tarry products. This is the source from which it is now principally obtained for commercial purposes,—being an incidental product of all the gas-works for supplying illuminating gas. It is also evolved from urine in a state of decomposition; and from this substance, which in our cities has never been utilized, are prepared annually in Paris from 17,000 to 18,000 lbs. of ammoniacal salts. Refuse animal substances, as bones and horns, blood and hair, horse-flesh, rags of wool and silk, are made to yield ammoniacal salts—as the carbonate, hydrosulphate, and acetate—by distilling them. The chief product is the subcarbonate of ammonia in solution. From the solid matters, that will not distil over, are obtained animal-black, which is used for clarifying sugars, and a carbonaceous substance used in the manufacture of Prussian blue. Sal-ammoniac is prepared from the crude carbonate thus obtained in combination with the ammoniacal products of the gas-works and other operations referred to. The liquors are saturated with muriatic acid and evaporated; the salt deposited is dried and then sublimed, by which means it is collected free from impurities. This is a very important salt of ammonia, for beside being directly useful for many purposes, particularly in tinning iron, it is the

most convenient form in which the alkali can be kept for sale or transported. For in a dry atmosphere it is not liable to part with its volatile ingredient by exposure to ordinary temperatures; and yet it is very readily converted into the other salts, or ammoniacal gas is obtained from it, and the aqueous solution prepared, by mixing it in a retort with slacked lime, and heating. The sal-ammoniac or hydrochloride of ammonia is decomposed, and chloride of calcium, and water and ammoniacal gas, are the products. The salt contains 81.98 per cent. of ammonia and 68.02 per cent. of hydrochloric acid; it crystallizes in cubes and feathery forms. Its specific gravity is 1.45 to 1.58. The smelling salts or volatile salts of hartshorn, or sal-volatile, is a sesqui-carbonate of ammonia, prepared by distilling $1\frac{1}{2}$ part of carbonate of lime, or chalk, with 4 parts of sal-ammoniac or of sulphate of ammonia. It is used in medicine as a stimulant; as a chemical reagent; and also as a substitute for yeast. The acetate of ammonia is prepared by decomposing the sesqui-carbonate with acetic acid. It is a useful medicine, whether applied as an external refrigerant, or administered as a diaphoretic. Its common name is spirit of mindererus. Sulphate of ammonia is largely produced in Europe for agricultural manures, for the manufacture of alum, and also for the preparation of other ammoniacal salts. Crude ammoniacal liquors or the carbonate of ammonia are saturated with sulphuric acid, and the dry salt is obtained very much as in the preparation of the hydrochloride.

AMMONIAC, a gum-resin, used in medicine as an anti-spasmodic and expectorant. Softened with vinegar, and applied as a plaster, it has been in use for 2,000 years. It is the juice of a plant growing in Persia called the *dorema ammoniacum*. When the stalk and leaves are punctured the gum oozes forth abundantly. Its specific gravity is 1.207. It contains 70 per cent. of resin, fuses at 180° , and is very soluble in alcohol.

AMMONIO, **ANDREA**, an Italian poet, born at Lucca in 1477, died at London in 1517. He became secretary of Henry VIII in 1513, through the good offices of his friend Sir Thomas More, and subsequently was appointed by Leo X. nuncio in England, while at the same time he continued in the office of secretary of the king, whom he accompanied in the campaign against France, which resulted in the capture of Tournay and Terouane. This triumph of the English was celebrated by Ammonio in a Latin poem, entitled *Panegyricus*. Erasmus was much pleased with it.

AMMONITE, a genus of fossil shells allied to the recent genus *nautilus*. They are in the form of a coil or of a ram's horn, and the name is given to them from their resemblance to the horns upon the statues of Jupiter Ammon. They also resemble a snake in its coil, and are generally supposed by the common people to be petrified snakes. Sir Walter Scott alludes to

them and to their abundance in the neighborhood of the monastery of Whitby, where they are still found in the rocks.

Of thousand snakes, each one
Was changed into a coil of stone
When holy Hilda prayed.

The animal that inhabited the shell was provided with air chambers, by means of which it could rise or sink in the water; and its shelly covering necessarily very delicate in order to float, was made strong to bear the pressure at great depths by its tubular form, and ribs or plates of shell that supported it within. From the lower rocks of the transition period up to the tertiary, the ammonite has been represented by many species. They abound especially in the oolite. The genus of living shells which most nearly represents them is that of the *nautilus*. They appear to have been very widely distributed over the ancient seas, the same fossil species being found in rocks of the same period in different quarters of the globe. They are common in the green-sand formation of this country, in New Jersey, and far up the Missouri river. In Asia, at an elevation of 16,000 feet, in the Himalaya mountains, some of the same species have been found that are met with in England, and one of the same in the Maritime Alps, 9,000 feet above the sea. They are so abundant in some parts of Burgundy, that the roads are paved with them. In the chalk formation they are occasionally found of gigantic size, 8 feet, and even 4 feet in diameter. This universal distribution of the ammonite during the same geological epochs indicates a greater uniformity of climate than now obtains; while the perfection of its structure, more complex in the form of the air chambers than in the *nautilus* of the present day, and its extraordinary capability of resisting pressure, combined with the greatest possible degree of lightness, show that as high a degree of excellence was attained in the organism of animated bodies at very early stages in the history of the world, as has been reached by their kindred families of modern times.

AMMONIUM, the hypothetical base of ammonia, supposed to be metallic. The following experiment will explain the reason for believing in the existence of such a substance. Let a globule of mercury be placed in a moistened cavity in a piece of sal-ammoniac, and then subjected to the action of a galvanic battery. The mercury soon acquires the consistence of butter, and swells to nearly 4 times its original bulk. It is in fact converted into an amalgam. A chemical change has taken place, and the mercury is combined with some element in ammonia; for the same result may be obtained with the use of the aqueous solution of ammonia. The amalgam is not permanent in its nature; exposed in the air it becomes covered with a crust of carbonate of ammonia; and if thrown into the water, ammonia and hydrogen gas are evolved from it, and the mercury returns to its former condition. As we know of no substance

that amalgamates with mercury, and forms a compound which retains the metallic lustre, except a metal, it is reasonable to infer that a metal does exist concealed in ammonia, as aluminum lay concealed in its oxide, alumina. This amalgam was first obtained by Berzelius and Pontin from the aqueous solution of ammonia. Davy produced it with sal-ammoniac; and it has since been obtained by simply dropping an amalgam of sodium and mercury into a strong solution of sal-ammoniac. At a temperature of 32° F., it is a firm crystalline mass; at 70° to 80° it is a soft solid. It is about 8 times the density of water. Gay Lussac and Thénard consider it as a mere combination of mercury and ammonia. But Berzelius regards it as a real amalgam of mercury and ammonium—and this a metal composed of 1 volume of nitrogen and 4 volumes of hydrogen.

AMMONIUS, surnamed SACAS or the SACK-CARRIER, because his official employment was that of public porter of Alexandria. By some, he is regarded as the founder of the later Platonic school. He numbered among his pupils, Longinus, Plotinus, and Origen. He died A. D. 248, aged 80. According to his system of theological philosophy, God is primarily essence, and secondarily, knowledge and power, the two last being developments of the first; the world is committed to the care of inferior divinities; and ascetic life leads to a knowledge of the Infinite.

AMMONOOSUCK, LOWER, a river which rises near Mount Washington, in Coos Co., N. H., pursues a course of 110 miles, and falls into the Connecticut river.—AMMONOOSUCK, UPPER, also rises in Coos Co., N. H., and after a course of 75 miles, empties its waters into the Connecticut at Northumberland.

AMMUNITION, comprises the projectiles, charges, and articles used for priming, required for the use of fire-arms, and, as the word is generally understood, supposes these articles to be made up ready for use. Thus, small-arm ammunition comprises cartridges and percussion caps (the latter, of course, are unnecessary where flint-locks or the needle-gun are in use); field-artillery ammunition is composed of shot, loaded shell, case shot, shrapnell, cartridges, priming tubes, matches, portfires, &c., with rockets for rocket-batteries. In fortresses and for sieges, the powder is generally kept in barrels, and made up in cartridges when required for use; so are the various compositions required during a siege; the hollow shot are also filled on the spot. The proportion of ammunition accompanying an army in the field varies according to circumstances. Generally an infantry soldier carries 60 rounds, seldom more; and a similar quantity per man accompanies the army in wagons, while a further supply follows with the park columns a march or two to the rear. For field-artillery, between 150 and 200 rounds per gun are always with the battery, partly in the gun-limber boxes, partly in separate wagons; another 200 rounds are

generally with the ammunition-reserve of the army, and a third supply follows with the park columns. This is the rule in most civilized armies, and applies, of course, to the beginning of a campaign only; after a few months of campaigning, the ammunition-reserves are generally very severely drawn upon, perhaps lost after a disastrous battle, and their replacing is often difficult and slow.

AMMUNITION BREAD, is the bread contracted for by government and distributed to private soldiers.

AMNESTY (Gr. *αμνηστια*, non-remembrance), is a term now used to express an act of grace on the part of a sovereign, by which political offenders are relieved of the consequences of their offences against public order. It is usual for sovereigns on coming to the crown, or on the birth of an heir, or sometimes of a great and unexpected victory, to perform this act of grace. Amnesties are either general, extending to all offenders, or partial, excluding a particular class of offenders, or certain individuals named, from its benefits.

AMO, ANTHONY WILLIAM, a negro born on the Gold Coast, in the earlier part of the 18th century. He came to Holland and became a protégé of the duke of Brunswick, who sent him to the university of Halle. He spoke Hebrew, Greek, Latin, German, Dutch, and French. After his patron's death he became very melancholy, and returned to his native land, where he lived a solitary life, and died in 1767, in one of the Dutch company's forts.

AMOL, a city of Persia on the river Heraz, in the province of Mazanderan, about 12 miles above its outlet into the Caspian sea. At Amol, a bridge is constructed over the river supported by 12 arches. The population is greatest in winter, when it is estimated at nearly 40,000.

AMONTONS, WILLIAM, a celebrated French physicist, born 1663, died Oct. 11, 1705. He was deprived of hearing in early life, by disease. It is said that he refused to make any effort to relieve his malady, and devoted himself diligently to the study of geometry and mechanics, but whether from a love of the retirement his deafness secured him, or because he deemed it incurable, does not appear. He wrote several important treatises upon scientific subjects, and constructed some new instruments in physical science. He first conceived, 1684, the idea of communicating between distant points by signals to be observed through magnifying glasses, though the use of the signal telegraph was not introduced until about a century afterward, 1798. He also wrote an elaborate and able treatise for the Royal Academy, entitled "A New Theory of Friction." His various scientific productions are found in the *Memoires de l'Academie des Sciences*, 1698-1705.

AMOOD, a territorial division of India, province of Guzerat, on the gulf of Cambay. The district near the sea is occupied in the manufacture of salt, a government monopoly in India.

AMoor, AMOUR, or AMUR, a river in north-eastern Asia, formed by the confluence of the river Shilka flowing S. W. from the trans-Baikal region in central or eastern Siberia, and of the river Argoon, coming from a south-eastern direction. The two rivers unite at the spot called *Streletskaya Stanitsa* (Shooter's Post), in about lat. 53° N. and long. 121° 30' E. The Amoor runs through a part of Siberia and the northern part of Tartary, or the land of Mantchoo, making an arc, and penetrating south into Mantchooria as far as lat. 42° 30', then flowing N. E. it empties into the sea of Okhotsk, a bay of the northern Pacific, in nearly the same latitude with its rise, and at long. 143° E. The mouth of the Amoor forms the sea of Kisi, and then the gulf of Amoor opposite to the island of Saghalien. Its whole length is about 1,600 miles. Its principal northern affluents are the Oldo, Tchekereea, Bureia or Niaman, Argoon or Henkoo; its southern, the Soongari, and Oosoori. The Amoor is navigable for its whole length; its estuary, however, is filled with sand and soft mud, rendering the passage difficult for 30 to 40 miles from the mouth. It freezes for its whole length at the beginning of November, and remains frozen till March, forming a highway for sledges. During winter, the shores are visited by heavy snow-storms called, in Siberia, *pyra*. Various Tungusian tribes, such as the Giliacks, the Mangoons, and others, inhabit or rove on both banks, like the Mantchoo Tartars on the southern. The whole region of the Amoor, as far even as from 200 to 300 miles on the south, is already a Russian possession, whose capital is the fort of Nikolaieff on the right or southern bank of the river, at the point where it begins to be navigable. Both shores are covered with thick forests of pine, oak, lime, maple, and cork trees. There are also fertile prairies, and the vine prospers in the southern districts. The river abounds with fish, and contains some previously unknown species of sturgeon. In the old legends, and in the still existing popular belief of northern Asia, the country of the Amoor is the land of gold and of promise. A steamer called the *America*, built at New York for the navigation of this river, first ascended it in the beginning of 1857.

AMoorANG, or AMOURANG, a bay and village of the island of Celebes. The bay is on the N. W. coast in lat. 1° 11', long. 124° 38' E. It is about 14 miles long and 6 broad, having an anchorage for vessels. The village lies at the head of the bay, 25 miles S. W. of Menado.

AMOR, the god of love, had no place in the Roman mythology proper. The Greek god, Eros, was called, in the Latin literature, Amor. The attributes of this god will be treated of under the head of EROS.

AMORETTI, CARLO, mineralogist, born at Oneglia in 1741, died at Milan in 1816. In 1757 he joined the order of the Augustines, and was appointed a member of the secular clergy

by the pope. In 1772 he was chosen professor of canon law at Parma, and in 1797 librarian of the Ambrosian library. After the foundation of the *Società Agraria*, by Maria Theresa in the Palace Brera, he became secretary of this society, and in 1808 was made member of the *consiglio delle miniere*. His *Nuova scelta d'opere interessanti sulle scienze e sulle arti*, a work in 29 volumes, familiarizes the Italians with the scientific progress of other nations. He was the first to make known the treasures of the Ambrosian library, by causing the publication of Leonardo da Vinci's manuscripts and descriptions of travel.—**MARIA PELLEGRINA**, a learned Italian woman, the niece of Carlo Amoretti, who bestowed great pains upon her education, was born at Oneglia in 1756, died in 1787. At the age of 16, she sustained, in public, arguments on various topics of philosophy. She studied law, and at the age of 21, graduated at Pavia, and received from the university her doctor's diploma. She wrote a treatise on Roman law, which was published after her death.

AMORITES. The Amorites were descendants of Ham, and the most powerful tribe of Canaan. The name is frequently applied generally to all the Canaanites. They occupied a portion of the territory promised to Abraham and his posterity, and the Israelites had a long and severe contest with them, to gain possession. The Amorites were of large stature, and possessed great physical prowess (Amos ii. 9). The bedstead of Og, the king of Bashan, was 9 cubits in length, and 4 in breadth. The territory of the Amorites lay mainly between Jordan and Arnon, just north of the Dead sea, a possession given in the division to the tribe of Judah. Although the command to the people was utterly to destroy the Amorites, yet, so difficult does this seem to have been of accomplishment, that as late as the time of the Maccabees, they were still extant, and a dangerous enemy to the peace of the country.

AMOROS, FRANCISCO, a Spanish colonel, born at Valencia, 1769, died at Paris in 1843, served with distinction in the campaign of 1793 and 1798, especially on occasion of defending the fort St. Elme against the French general Despinis. After the peace of Basle in 1796, he established at Madrid a military school after the system of Pestalozzi, and in 1807 he was appointed tutor of the Spanish infant Don Francisco de Paula. Under King Joseph he became chief intendant of police and royal commissioner of the province of Guipuscoa. Ferdinand VII. banished him from Spain. He went to France, where he was received with open arms. He was the first to introduce gymnastics as an element into the French system of education. He became director of the military normal gymnasium of Paris, which was furnished and established, under the auspices of the French government, and published also various essays connected with administrative, military, and educational matters.

AMORTIZATION, or AMORTIZEMENT (Lat.

amortisare), in old English law the alienation or conveyance of real estate to corporations, was prohibited by a series of statutes, the earliest of which, the magna charta of Henry III., applied only to ecclesiastical, but were subsequently extended to all corporations. Their influence is not yet extinct, either in England or America, though the powers of corporations have been much enlarged in both countries, and in some states put upon the same footing in this regard with those of private parties. These statutes were called the statutes of *mortmain*, as forbidding conveyances into dead hands—hence amortization.

AMORY, THOMAS, a celebrated eccentric individual and writer, was born in England, but went with King William to Ireland, where he spent a considerable portion of his life, a companion of the famous Dean Swift. He was the author of memoirs of the lives of several ladies, and the life of John Bunce, Esq., which latter is supposed to be a description of its author. He was known as an ardent student, and frequently in traversing the most thronged thoroughfares, he was observed to be absorbed in meditation, quite abstracted from what was occurring about him. He died in May, 1789, in his 97th year.

AMOS, one of the lesser prophets, who prophesied in the days of Uzziah, king of Judah, and Jeroboam II. of Israel, between the revolt and the captivity of the ten tribes, and from about 798 to 784 B. C. He was therefore contemporary with Isaiah and Hosea. He was a native of Tekoa in the central part of Judea. He does not appear to have been educated as a prophet, but according to his own account (vii. 14, 15) was taken from his flocks to prophesy. His prophecies were especially addressed to Israel, and were delivered in the time of their greatest prosperity as a separate people. They denounce the kingdom of Israel, and foretell the captivity.

AMOSKEAG, a village in Hillsborough county, N. H., of considerable manufacturing importance. The river Merrimack falls 56 feet in a mile, affording unrivalled water power. Amoskeag has been recently incorporated within the city of Manchester. The Amoskeag manufacturing co. have 4 mills, containing 62,846 spindles and 1,665 looms, affording employment to 2,100 females and 400 males. The daily product of their labor is 65,000 yards, or 87 miles of tickings, denims, drillings, sheetings, and other goods. There are also machine shops connected with the above, which employ 500 persons and manufacture 60 locomotives a year, together with a vast amount of machinery. Another large factory, to employ 1,500 persons, has recently been completed.

AMOUREUX, PIERRE JOSEPH, a French physician, born at Beaucaire, about the middle of the 18th century, died in 1824 at Montpellier, where he was librarian to the medical faculty. He is the author of numerous works on medicine, natural history, botany, and agriculture. Tessier, a very competent authority,

speaks very highly of Dr. rural economy.

AMOY, a seaport town Fokien, China, situated a island of the same name, 118° 18' E., abreast of the of Formosa. Amoy is built facing a fine harbor. It about 800,000; has many at the time of the British considerable forts, one of them and is reckoned to be near ference. Amoy is the port city of Chang-choo-foo, with communication. The inhabitants chiefly employed in trade, reckoned among the most. The port was open to the it was closed. It was captured in 1841, and by the treaty thrown open, first to Britain alike. The native merchant extensive trade coastwise, Manila, Siam, and the more than 800 junks, burden. The chief exports opium, sugar, sugar candy, earthenware, joss stick, and imports consist of rice, from Formosa, East Indian and goods, betel-nut, steel, dago, rattans, rice, pepper, bêche de mer, and deer and

AMPELIUS, LUCIUS, whose life we know nothing epoch is the third century reign of Theodosius the Great Trajan in his works, he is that emperor, and as he says man who ever voluntarily alieignty," he is supposed to Diocletian, who did abdicate also speaks of the temple of as existing. This temple was 260 of our era. His small *Memorialis*, and contains a natural phenomena and his is generally printed with Fl published separately by Bec The earliest edition printed edited by Saumaise, Hanover

AMPÈRE, ANDRÉ MARIE, philosopher and author, born at 1775, died at Marseilles, Ju a boy he showed a singular ematics, in which at 10 years made remarkable progress, persuaded to apply himself to studies. He finally consented that he might be able to of Euler and Bernoulli, which cessible only in Latin. At had gone through the whole studies, and had read the great Diderot and D'Alembert so the years afterward he could still re

of the work. The death of his father, who fell a victim to the guillotine in the revolution, affected him with such profound melancholy that for upward of a year his friends feared that his fine intellect had been permanently impaired. An essay on botany by Rousseau, which accidentally fell into his hands, aroused him from this lethargy, and he applied himself with enthusiasm to botanical studies, read romances, wrote verses, and projected poems, tragedies, and translations. This romantic mood having expended itself he returned to his scientific pursuits, and in 1799 was appointed professor of mathematics at Lyons, a post which he owed to an able treatise, entitled "Considerations on the Mathematical Theory of Games of Chance," his first publication. Advancement rapidly followed, and in 1808 we find him inspector general of the university, in the succeeding year professor of mathematical analysis in the polytechnic school of Paris, a chevalier of the legion of honor, and in 1814 a member of the institute. In 1820 he began to devote much attention to the phenomena of electro-magnetism, and in 1824-'26 published the result of his researches in two volumes, under the title of *Recueil des observations électrodynamiques*, a work characterized by profound thought and philosophical sagacity, and on which his reputation as a scientific man securely rests. His publications are exceedingly numerous, and consist of treatises on various scientific subjects, many of them being contributions to *Le Journal de l'école polytechnique*, and the *Mémoires de l'Institut*. Ampere was a man of genial humor and great simplicity of character, and singularly ignorant of the world, from which he lived retired. Beneath a timid and apparently unsympathetic exterior he concealed a truly noble spirit, and when the occasion demanded—as in the Greek or Polish revolutions—could express himself with an eloquent enthusiasm that sometimes surprised himself. He was engaged on his last great work, "The Classification of the Sciences," at the time of his death.—JEAN JACQUES, son of the preceding, and a French author of some note, born at Lyons, Aug. 12, 1800. His education was completed under the supervision of his father at Paris, where he had access to some of the most refined society, and enjoyed the friendship of Madame Recamier and Chateaubriand. He pursued a course of philosophy with Cousin, and like his father early conceived a passion for English and German literature, romance, and belles-lettres. After some years devoted to travel and literary pursuits, in 1833 he was called to the chair of a professor in the college of France. In 1842 he was elected a member of the academy of inscriptions and belles-lettres, and five years afterward of the French academy. He has been connected with the *Globe*, a newspaper, and the *Revue Française*, latterly with the *Revue des Deux Mondes*, to which he contributed a well-written series of articles on a journey in Egypt and Nubia in

1844. The hieroglyphic remains of these countries attracted a large share of his attention, and his success in deciphering them attests his skill and industry. He has travelled much in Europe and the East, and bears the reputation of an unusually accomplished scholar in modern languages and literature. Some years ago he visited the United States, through which he made an extended tour, paying much attention to aboriginal remains and antiquities, and observing carefully the habits of the people. The result of his travels was published in the *Revue des Deux Mondes*, but failed to excite much attention. His works entitled *De la Chine et des travaux de Remusat*, and *La Grèce, Rome, et Dante*, evince his knowledge of languages and general literature.

AMPFING, a village of Bavaria. It is about 5 miles W. of Mühldorf, and remarkable as being in 1832 the scene of a terrible conflict between the emperor Louis of Bavaria, and Frederic of Austria, in which the latter was entirely defeated. In the year 1800 the famous retreat of Moreau began here.

AMPHIARAUS, a prophet and warrior of antiquity, son of Oicles or Apollo, and Hypernestra. He was married to Eriphyle, daughter of Adrastus, king of Argos, by whom he had numerous sons. Having sworn that he would abide by the decision of Eriphyle on any difference which might arise between himself and Adrastus, that perfidious woman took advantage of this oath to force Amphiarus to join in the enterprise of the 7 against Thebes. Before setting out he made his sons promise to punish the treachery of their mother. At the siege of Thebes he greatly distinguished himself, but being pursued by Periclymenus, he fled toward the river Ismenius, where the earth opened and swallowed him. Zeus, however, made Amphiarus immortal, and thenceforth he was worshipped as a hero all over Greece. His prophetic powers were commonly ascribed to his descent from Apollo.

AMPHIBIA. There is probably no truly amphibious animal, as that would imply the possibility of living and breathing equally well in air and in water. The old naturalists gave the name to beavers, otters, frogs, and other animals from all the orders of vertebrata; Linnaeus restricted the term to reptiles with cold blood and simple circulation; Cuvier called amphibia such mammals as can dwell on land or in the water, like the seal, the walrus, the dugong, occupying a position intermediate between the feline and the marsupial animals. There are, strictly speaking, animals which have both gills and rudimentary lungs, as the proteus, the siren, the menobranchus, but they are decidedly aquatic, and perish sooner or later in the air. The *amphibia* constitute an order of reptiles (the *batrachia* of later herpetologists), and may be characterized as vertebrated animals, with cold blood, naked skin, reproducing by means of eggs, and most of them undergoing a metamorphosis or change of condition, having

relation to a transition from an aquatic respiration by gills to an atmospheric respiration by lungs, and a consequent alteration in general structure and mode of life. These characters have led some writers to consider the amphibia as a distinct class, instead of a mere order of reptilia. As a form connecting two others of higher typical importance, the reptiles and the fishes, the amphibia are specially interesting. No arrangement proposed by naturalists presents a perfect division of the different forms; the following by Mr. Thomas Bell, of London, founded on the absence, or presence, and duration of the gills, seems the most natural:—Class AMPHIBIA. Order 1. AMPHIPNEUSTA. Body elongated, formed for swimming; feet either four, or two anterior only; tail compressed, persistent; respiration aquatic throughout life, by external persistent gills, coexisting with rudimentary lungs; the eyes with lids. Genera, *Protos*, *Siren*, *Siredon*, *Menobanchus*, *Pseudobanchus*.—Order 2. ANOURA. Body short and broad; feet during the tadpole state wanting, afterward four, the hinder ones long and formed for leaping; tail before the metamorphosis long and compressed, afterward wanting; ribs wanting; vertebræ few and ankylosed together; respiration at first aquatic by gills, afterward atmospheric by lungs; gills at first external, but withdrawn into the chest before the metamorphosis; impregnation effected externally during the passage of the eggs. Genera, *Rana*, *Hyla*, *Ceratophrys*, *Bufo*, *Rhinella*, *Otilopha*, *Ductylethra*, *Bombinator*, *Breviceps*.—Order 3. URODELA. Body long and slender; feet always four; tail long and persistent; ribs very short; respiration at first aquatic by external gills, afterward atmospheric by cellular lungs; vertebræ numerous and movable; impregnation internal. Genera, *Salamandrina*, *Salamandra*, *Molge*.—Order 4. ABRANCHIA. Body long and formed for swimming; feet four; cranium solid; tail compressed; respiration by lungs only; gills absent; no metamorphosis known. Genera, *Menopoma*, *Amphiuma*.—Order 5. APODA. Body elongated, slender, and snake-like; feet none; tail very short, almost wanting; lungs, one larger than the other; ribs very short; breast-bone wanting; impregnation unknown, probably internal. The existence of gills at any period of life is unknown. Genus, *Cæcilia*.—In the adult amphibia the skeleton varies considerably in form and composition, according to their habits and the presence or absence of a tail. In the frog, which moves extensively on land, we find the hind legs greatly developed to enable them to take the enormous leaps by which they pursue their prey and escape from danger; hence they have no useless tail, their bodies are contracted longitudinally into a short space, and the vertebræ are few, united into a single immovable piece unprovided with ribs. On the contrary, the water-salamanders or newts have a long tail, a slender flexible body, and all their organs fitted for aquatic life. The structure of the bones is more compact and

calcareous, and less transparent and flexible, than in fishes. The bones of the skull do not overlap each other, but have their margins in contact and occasionally united; the bones of the face are more closely united to those of the skull than in the fishes; the intermaxillary and jaw-bones are much developed, transversely, expanding the general form of the skull without involving any enlargement of the brain cavity, which is very small. The hyoid bone experiences most remarkable changes in those genera which undergo metamorphosis. In the highest amphibia, the bones of the spine are very few; in the frog there are 9, in the pipa only 8, unprovided with ribs, but having long transverse processes; the anterior articular surfaces of the bodies are concave, and the posterior convex; in the tadpole, and in the genera which retain their gills through life (*siren*, *menobanchus*, &c., hence called *perenni-branchiate*), the substance between the vertebræ is soft, and contained in cup-like hollows formed by the concave articular surfaces of contiguous bones, precisely as in fishes; another proof of the intermediate condition of these lower forms of the class. In the salamanders the vertebræ are more numerous, especially those of the tail; in the *siren* the trunk has as many as 48, and the tail as many more. The limbs are arranged on very different plans in the different groups; in the frogs and toads they are well developed, and suited for active leaping and swimming; in the elongated aquatic species the limbs are small and feeble; in *cæcilia*, there are not even the rudiments of limbs; in these the imperfect development of the extremities is compensated by the extent of the spine of the body and tail, by the curves and flexures of which they swim with considerable rapidity. In the fish-like tadpole, the limbs are at first scarcely perceptible, and in their gradual development acquire a considerable size and well-defined form while yet imprisoned beneath the skin; the hind legs are first seen; the tail is much developed, gradually disappearing by absorption as the limbs acquire their full size. All the amphibia have teeth on the palate; the salamanders have them also in both the upper and lower jaws, the frogs in the upper only, and the toads in neither; the jaw-teeth are always slender, sharp-pointed, and closely set; the frog has about 40 on each side of the upper jaw; the salamander has about 60 above and below; the palatine teeth are generally arranged transversely, parallel to the jaw-teeth. In the adult amphibia the gullet is wide and short; the stomach is a simple sac, elongated in the aquatic species; the intestine is but slightly convoluted, and terminates in a *cloaca*, or pouch, which also receives the openings of the genital and urinary organs; the vent in the frogs and toads opens on the hinder part of the back; in the other forms it is beneath the commencement of the tail, as in ordinary reptiles. The liver, pancreas, and spleen, are found in all the class. The lymphatic and lacteal systems are extremely

developed; in the course of the lymphatics are found pulsating cavities or ventricles which propel their contents toward the veins; their pulsations, however, not coinciding with those of the heart, nor those of one side with those of the other. In the circulating system we find the most convincing proof of the intermediate position of the amphibia; they begin life with the single heart and gills of fishes, but as their metamorphosis goes on, the heart assumes the compound character necessary for the pulmonary respiration of the reptiles. The heart in the early stage of these animals consists of a single auricle which receives all the blood after its circulation, and a single ventricle which sends it through a third cavity, the *bulbus arteriosus*, to the gills or branchiæ; in the gills the blood is purified by the oxygen of the water, and returned by their veins to the aorta; from the last branchial artery a branch is given off on each side, which goes to the rudimentary lungs and afterward becomes the pulmonary artery; between the branchial arteries and veins are small communicating branches, which, as the gills are absorbed, gradually enlarge until they form continuous trunks, and the original branchial artery becomes the root of the two descending aortæ, at the base giving off the pulmonary artery; the two veins which return the blood from the rudimentary lungs enlarge as these organs are developed, and become the pulmonary veins, which last, being distended at their point of union with the heart, ultimately form the second auricle. The circulation, then, of the adult amphibia assumes the character which we find in the reptiles generally, being performed by a single ventricle and two auricles; the pure blood in the pulmonic auricle and the impure blood in the systemic auricle are sent together and mixed in the single ventricle, so that a half purified blood is distributed to the organs. The gills, whether external or internal, are expanded in a leaf-like form, considerably divided, though much less so than in fishes; in the earliest stages they are always external, and remain so permanently in the order *amphispneurta*; but in the higher orders they become very soon internal; they are supported by cartilaginous or bony arches connected with the hyoid bone, which changes its form in accordance with the development of the respiratory organ. On the leaflets of the gills the minute blood-vessels run, bringing the venous blood into contact with oxygen, and sending it back purified to the heart. While some amphibia retain their gills through life, with coexistent rudimentary lungs, others lose them entirely as the lungs are developed, so that there probably is a brief period in the life of some of these animals in which they may truly be called amphibious. In the *caducibranchiate* genera (or those which lose their gills), the early condition of the lungs is a mere sac without any appearance of the cells or pulmonary structure afterward developed; it becomes, therefore, an interesting question whether the

similar rudimentary lungs of the *perennibranchiate* genera can serve any of the purposes of respiration. From the mechanism of respiration in the higher genera, and the anatomical deficiencies in the accompanying apparatus in the lower, it would be at once seen that these simple sacs could hardly aid the gills, and much less could perform their office in aerating the blood. Rusconi concludes that in the proteus, at least, these sacs do not assist in respiration; and experiments alluded to in the "Proceedings of the Boston Society of Natural History," vol. vi., p. 153, show that the menobranchus perishes in about 4 hours when removed from the water. In the higher orders, the reception of air into the lungs is effected by a simple act of swallowing; the air enters the mouth through the nostrils, and, the gullet being closed, is forced into the lungs by the action of the muscles of the hyoid bone; the fish-like structure of the nostrils in the lower genera, and the imperfect condition of their glottis and windpipe, with the perfect development of the gills, show that, like the air-bag of fishes, these simple sacs, though they represent rudimentary lungs, are not for the purposes of respiration proper. The brain offers the same gradations from the fish-like simplicity of that of the tadpole and lower genera to that of the reptile, in which the hemispheres become enlarged laterally, and the spinal cord shorter and thicker at the origins of the nerves of the limbs. In the frogs the eyes are large and prominent, in the salamanders comparatively small, and in the cæcilia scarcely visible; in all they resemble those of fishes in the flattened anterior surface, the small quantity of the aqueous humor, and the depth of the crystalline lens; the eyes of the frog are fully developed, and provided with lids. In the lower genera and in the tadpole state, the organ of hearing is quite imperfect, consisting of a hollow in the temporal bone, at the bottom of which is the sac containing the cretaceous body on which the nerve is spread; there is no drum nor tympanic cavity; the organ is covered by the skin, without any communication externally. In the frog the ear is more complicated, having the drum with its cavity and bones, and communicating with the mouth by a Eustachian tube. The sense of smell must be imperfect in the amphibia; in the lower forms the nostrils are mere cavities in the front of the head, with no communication with the mouth, as in fishes; in the higher orders the nose communicates with the mouth, but in them the apparatus for smelling is probably less sensitive than in the lower forms, the nose being more connected with the act of breathing. The sense of taste is probably also very obtuse; in the frogs and toads the tongue is developed to an extraordinary degree, being long, with the anterior half free, doubled back on itself, and capable of being thrown forward and retracted with great quickness, serving for the seizure of the insects on which they feed, and for conveying them in-

stantly to the back part of the mouth. The amphibia are distinguished from reptiles by the absence of all scaly covering; a naked skin characterizes all, from the snake-like *cæcilia* to the fish-like axolotl. The skin of the aquatic genera is soft, smooth, and kept constantly moist by the cutaneous secretions; in the land genera, as frogs and toads, the glands of the skin secrete a thick whitish fluid, which may become acrid and irritating, giving rise to the opinion that these secretions are poisonous; in the salamander, the fluid thus poured out is so abundant, and so suddenly secreted when the animal is irritated, that it is quite probable that even the effects of fire may be for a short time arrested by it,—doubtless the origin of the well-known fable in regard to this animal. The cuticle is frequently shed; that of the aquatic genera being washed away in shreds, while that of the toads is divided along the median line, removed by the contortions of the animal, and finally swallowed at a single gulp. The amphibia breathe by the skin as well as by the lungs and gills; a frog will live from five to six weeks in a state of complete strangulation, and even after total excision of the lungs; indeed, the pulmonary respiration is insufficient to support life in these animals without the assistance of the skin. The medium through which the blood is oxygenated, whether lungs, gills, or skin, whether in air or in water, is always a modification of the cutaneous surface; and, as in frogs the same surface is capable of performing both aquatic and atmospheric respiration, it is natural to infer that lungs and gills are identical in structure. The amphibia, like many of the invertebrate animals, have the power of reproducing parts lost by accident or design; the common water salamander will invariably restore the limbs which have been cut off for experiment, and even repeatedly; the common land salamander also reproduces its tail, which it so easily separates in case of need. Impregnation is effected without sexual congress, except in the land salamander; in the order *anoura*, the male embraces the female with great tenacity, and impregnates the eggs, several hundred in number, as they are ejected under his pressure; in the tailed aquatic species, impregnation takes place during the instantaneous apposition of the cloacal openings of the two sexes. The testes and ovaries are double, and symmetrically arranged; they are much enlarged at the breeding season. When the young are ready for aquatic life, they burst the thin membrane of the egg, and come out in the fish-like form. In the terrestrial salamander, whose habits do not permit this mode of development, the young undergo their metamorphosis in the oviduct, in which they pass their tadpole state, and appear without gills when they are ready for terrestrial existence. Like the viper, the salamander is *ovoviviparous*. In the pipa, or Surinam toad, the eggs, instead of being dropped into the water, are placed by the male on the back of the

female; here they are attached by a thick mucus, and the skin gradually thickens in the intervals so as to form a cell around each egg; in these cells the young undergo their metamorphosis, and come from them perfect animals. After the young are hatched out, the cells of the female disappear. Like many of the saurian and chelonian reptiles, some of the amphibia are used as food. The delicacy of the frog's thigh is well known to the epicure. The Mexicans consider the sirenon or axolotl very good eating; and it is quite probable that, like the reptile iguana, many of the hideous amphibia are nutritious and wholesome articles of food. Most of the amphibia are objects of popular abhorrence; even the harmless and useful toad is trodden under foot by the ignorant schoolboy. Formerly they were more detested than now, and were looked upon as the special favorites of witches. Shakspeare mentions among the contents of the witches' cauldron, not only the toad, but "eye of newt and toe of frog." The entrails of the toad, and the whole animal roasted dry and reduced to powder, formed in old times an article of *materia medica*, and entered into the composition of many wonderful nostrums.

AMPHIBOLOGY, a term employed by rhetoricians and grammarians to denote an ambiguous arrangement of words, by which the phrase may become susceptible of more than one meaning.

AMPHIBRACHYS, the name of a foot in Greek and Latin poetry, consisting of a short, a long, and a short syllable, as in the words *ἀντίκ', ἀμάρκ'.*

AMPHICTYONS, members of an Amphictyony, a term used by the ancient Greeks to designate an association of neighboring tribes or cities for the observance of the law of nations toward each other, and the protection and worship of some deity, whose temple was supposed to be the common property of all. The word is sometimes derived from the mythical hero, Amphictyone, son of Deucalion and Pyrrha, but is properly a compound from *ἀμφι* and *τύς* or *τις*, signifying "dwellers around" or "neighbors." The origin of these associations is enveloped in much obscurity, and beyond the fact that several of them existed in Greece at a very remote period, forming, as it were, the germ of one of the strongest bonds of union by which the Greek tribes were held together, we know nothing of the circumstances of their formation. The most celebrated of these confederations was that known as the Amphictyonic council, which from small beginnings rose to great importance, on account of the wealth and magnificence of the temple of Apollo at Delphi, of which it was the special guardian. It was composed of 12 tribes, variously described by the authorities, but generally supposed to comprise the Ionians, Dolopians, Thessalians, Etæans, Magnetes, Malians, Phthian Achæans, Dorians, Phocians (including the Delphians), Locrians, Boeotians, and Perrhæbians,

all of whom originally dwelt in and around Thessaly and were of equal importance, although subsequently we find them distributed over all parts of Greece. Some became utterly insignificant or extinct, and the fact of the Dorians standing on an equality with the Dolopians or Malians shows that the council must have existed before the Dorian conquest of the Peloponnesus. The council met twice a year, in the spring at the temple of Apollo at Delphi, and in the autumn at that of Demeter (Ceres) at Anthela, near Thermopylæ, and was represented by two classes of deputies from each tribe, the Hieromnemones, and the Pylagoræ, whence it has been supposed that two Amphictyonys, organized for the worship of two distinct deities, were subsequently merged in one. The 12 tribes had equal rights at the meetings of the council, and each was entitled to 2 votes, to be given by its deputies. The objects of the confederation are best described in the following oath which each of its members was obliged to take: "We will not destroy any Amphictyonic town, nor cut it off from running water in war or peace; if any one shall do so we will march against him and destroy his city. If any one shall plunder the property of the god, or shall be cognizant thereof, or shall take treacherous counsel against the things in his temple at Delphi, we will punish him with foot and hand and voice, and by every means in our power." It will be seen from this that the chief care of the council was to uphold the dignity of the god and watch his temple, and to restrain acts of aggression against its members; and it would be a mistake to suppose that it claimed, or was permitted to act as a national congress for the protection of the common interests of Greece.—Notwithstanding the humane and wise objects of the council, it engaged in 2 sanguinary wars against some of its own members, called the 1st and 2d sacred wars, and finally lent itself to the ambitious purposes of Philip of Macedon, who, in the name of the league, excited a 3d war in 338 B. C., in which the liberties of Greece were extinguished at the battle of Chæronea. The first of these wars, which began in 594 B. C. and lasted till 585 B. C., was declared against the Phocian city of Oriessa, on account of injuries inflicted upon persons visiting the oracle of Apollo at Delphi, and resulted in the total destruction of the city. The 2d sacred war, from 355 to 346 B. C., originating in a charge against the Phocians of taking into cultivation a tract of land belonging to the Delphic temple, was carried on with such vindictiveness that nearly every Phocian town was destroyed. Philip of Macedon having entered the struggle at the solicitations of the Thessalians, decided the war in their favor, and thus gained his fatal ascendancy in the affairs of Greece. The Phocians were ejected from the league at the close of the war, but were subsequently readmitted. The duration of the Amphictyonic council is not precisely known, and its decay and extinction are enveloped in

the same obscurity that attended its formation.

AMPHILA, a bay in the Red sea on the coast of Abyssinia, containing 18 small uninhabited islands, lat. 14° 30', long. 4° E.

AMPHILOCHUS, a son of Amphiaraus and Eriphyle, and brother of Alcmaeon, is said to have been one of the suitors of Helen, and to have taken part in the Trojan war. He was celebrated for his prophetic gifts, and had an oracle at Mallos, which was esteemed the least fallacious of all oracles; and at Athens, Oropus, and Sparta, he shared in the divine honors paid to Amphiaraus.

AMPHIMACER, or **OROTTO**, in Greek and Latin poetry, a foot of three syllables, the middle one being short and the two others long, as in *cogitāna*.

AMPHION, a son of Zeus and Antiope. After birth, himself and his brother Zethus were exposed on Mount Cithæron, but were found and brought up by shepherds. Mercury or Apollo is said to have given a lyre to Amphion, who from that moment devoted himself altogether to song and music. To avenge the wrongs of their mother, the brothers undertook an expedition against Thebes, which they captured and fortified. This work is said to have been accomplished in a very extraordinary manner. When Amphion played on his lyre, the stones moved whither they were wanted, and continued to assume their proper position in the wall till the whole was finished. He married Niobe, by whom he had many sons and daughters; all of them were, however, killed by Apollo.

AMPHIPOLIS, a city of Thrace, at the mouth of the Strymon, founded by an Athenian colony in the 5th century B. C. It was besieged by the Lacedæmonians under Brasidas, during the Peloponnesian war, and compelled to surrender to them. At a subsequent period it fell into the hands of Philip of Macedon. When that country was conquered by the Romans, it was constituted the capital of one of the districts into which the Macedonian territory was divided. There is now no trace of Amphipolis, and the place where it once stood is called Jenikeui.

AMPHISBÆNA (Gr. *αμφισβæνα*, an animal that can move or walk in both directions), the name of a genus of serpents. The head of the amphisbæna is so small and the tail so thick and short that it is difficult to distinguish one from the other, at first sight; and this peculiarity of form, in addition to the animal's habit of proceeding with equal facility either backward or forward, has given rise to the popular belief in Brazil and other parts of South America where the amphisbæna most abounds, that it possesses two heads, one at each extremity. These serpents are distinguished from others by their nearly uniform thickness of body, from the head to the extremity of the tail, by their small mouths and extremely diminutive eyes, remarkably short tails, and numerous rings of

small square scales, completely surrounding the body and the tail. The jaws are furnished with a single row of small conical teeth; the palate being toothless, those of the jaws are few in number and distant from each other; these serpents are also destitute of fangs, and are therefore harmless and inoffensive. They live mostly on ants and other small insects; and inhabit ant-hills and burrows which they make for themselves under ground. The genus *amphisbæna* contains only a few species confined to Brazil, Surinam, and other tropical parts of the American continent. The *amphisbæna fuliginosa* is the best known species. It is found in the hotter regions of South America, and does not inhabit Ceylon, or any part of the East Indies, as Linnæus and Lacepede were led to believe, on the authority of Seba. The general color of this serpent is a deep brown, varied with shades of white, more or less clear, according to the season of casting the old and acquiring the new external coat, or "skin." The animal grows to the length of 18 inches or 2 feet, the tail measuring only one inch or thereabouts. The body, about as thick as the wrist of a child of 10 years of age, is surrounded by upward of 200 rings, and the tail by 25 or 30. The eyes, exceedingly diminutive, are covered by a membrane which almost conceals them; and this has given rise to the popular opinion that the *amphisbæna* has no eyes, and is entirely blind. The same opinion prevails in other countries with regard to the "blind-worm" or *anguis fragilis*; which is not blind, although its eyes are very small.

AMPHITHEATRE, an open elliptical building with an elliptical space in the centre called the arena; from the low wall surrounding which rose tiers of seats, supported on arches, receding to near the summit of the outer wall. These buildings were used for public games or combats between men or beasts. The arena was so called from the Latin for sand, that material being usually employed to give a firm footing and to dry up the blood. The wall around the arena varied in height from 8 to 18 feet. On a level with its top spread the first platform where the chairs of the more honored spectators were placed. From the top of the wall that formed the back of this space rose the first tier of seats, reaching to another platform with another wall at its back, and so on to the top. The box (*suggestus* or *cubiculum*) of the emperor or chief magistrate was on a conspicuous part of the first platform (*podium*), as was that of the vestal virgins. A raised seat on the same was also assigned to the giver (*editor*) of the games. At each end of the arena was a large door for the entrance and exit of men and beasts. The latter were kept in dens under the platforms and seats, and sometimes forced upon the arena through small doors in the side of the wall surrounding the arena. Sometimes also, if not always, there were vast substructions beneath the floor of the arena containing dens from which the

animals might be snatched by trap-doors on the arena. Excavations in the Colosseum have shown moments. On the top of the arena was a railing of bronze, and on the first platform of the wild beasts were the ditches called *euripi* or *septa*. An awning of ropes and pulleys from sockets around the top of the arena to have been sometimes used to protect spectators. When the *velarium* to be spread or a sort of parasol over the amphitheatre seems to have been described by Pliny. It was made to revolve in any manner that they could contrive, and machinery, by which it was turned as to form one building, were first exhibited in the arena of wild beasts in the time of the ancient custom of the dictatorship of Julius Cæsar. Most of the early amphitheatres were temporary and made of wood, but Nero at Rome and Atilius at Fidenæ during which gave way during or injured 50,000 persons. The first amphitheatre was built by the desire of Augustus. That in the Campus Martius was destroyed by fire in 64 A.D. it has therefore been rebuilt. The external walls were of brick, and other parts of the interior were of stone. A second amphitheatre was built by Caligula; but by far the most famous was the Flavian amphitheatre, the Colosseum, which was begun by Vespasian and finished by his son Titus, in 80, on which occasion, a great number of persons, 5,000, and according to some, 10,000, were destroyed. The fact was compiled to show the power of the chief amphitheatres:

PLACE.	Length.	Breadth.
Rome (Colosseum)	615	510
Verona	513	410
Vienne	508	496
Pozzuoli	490	382
Aries	459	383
Limoges	450	373
Nîmes	437	332
Pompell	430	335
Poitiers	436	375
Pola	386	292

During the middle ages, the amphitheatres were used as castles or as quarries, according to the exigencies of the times; but, in spite of all assaults of man or time, their ruins are among our most stupendous monuments.

AMPHITRITE, the wife of Neptune and goddess of the sea, the mother of Triton, Rhodos, and Bantesioyme. She became so jealous of Scylla, that she threw some magic herbs into the well in which her rival was accustomed to bathe, and thus transformed her into a monster with six heads and twelve feet. In ancient works of art Amphitrite is always distinguished from Aphrodite by a net which keeps her hair in order, and by the claws of a crab on her forehead.

AMPHITRITE ISLANDS are in the China sea, near 16° N. lat. and 112° E. long. They are included in the group known by the name of the Paracels, and are divided into two groups, lying to the N. N. W. and S. S. E. of each other by a deep water channel between them.

AMPHITRYON, a son of Alceus and Hippomenes. Having accidentally killed his uncle Electryon, he was expelled from Mycenæ, and forced to take refuge in Thebes. In order to win the hand of Alcmena, he undertook an expedition against Pterelaus and the Taphians, whose lands he seized and divided among his friends. He was subsequently married to Alcmena, and became the father of Iphicles by that princess. He was killed in a war which himself and Hercules were carrying on against Erginus, king of the Minyans. His tomb was standing at Thebes in the time of Pausanias.

AMPHORA, a large two-handled vase, commonly made of earthenware, and used by the ancients to hold wine, oil, the ashes of the dead, and even dead bodies.—The amphora was also a liquid measure among the Greeks and Romans, equivalent to about eight gallons with the former and six with the latter.

AMPLIFICATION, in rhetoric, properly signifies the expansion or development of a subject in writing or speaking. It is sometimes confounded with exaggeration or diffuseness. Voltaire, for example, observes that a man does not amplify in saying all that ought to be said, and that he therefore says too much when he amplifies. But a man may have said all that ought to be said to convey his meaning to one class of people, but not to another class, for whom it may be necessary to amplify. Repetition is said by Archbishop Whately to be the secret of successful amplification: many quick blows of the axe, not several slow ones. The fault of our times is that the axe is apt to be used long after the wood is split; but an amplified commonplace is as useless as it is fatiguing.

AMPLITUDE, the angle which a line drawn from the observer to the centre of a heavenly body, at the moment of its rising or setting, makes with an east and west line. If the east and west line is determined by a compass, the amplitude is called magnetical amplitude, and

its difference from the calculated true amplitude gives the variation of the needle from North.

AMPUDIA, a town in Spain, with a population numbering about 1,886. It is 18 miles from the old city of Palencia. On June 6, 1813, Wellington's army made it their head-quarters.

AMPUDIA, PEDRO DE, a Mexican general, promoted to this rank by Santa Anna, in 1840, after having previously been connected for many years with the Mexican army. In 1842, under command of Gen. Woll, he led on a Mexican foray in its attacks upon the frontiers of Texas; and in the conflicts which this produced at Laredo and Mier with the Texan forces under Summerville, he took a prominent part. In December of the same year he commanded the army at the siege of Campeachy, in Yucatan, while the same port was blockaded by the Mexican navy, under Admiral Lopez. When on the night of June 26, 1843, the Mexicans were compelled to retreat by Commodore Moore, Ampudia proceeded to Tobasco. Here he became the object of great indignation in the summer of 1844, for his savage treatment of Gen. Sentmanat, who, in his exasperation against Santa Anna, by whom he had been sent into exile, had made an attack upon the town of Tobasco. Here, with 14 of his companions, he was shot by order of Ampudia, who caused their heads to be boiled in oil and hung in iron cages to the walls of the town. Ampudia was at once removed from Tobasco, and we do not hear of him again until 1846, when on April 11, he made his appearance before Matamoras as general in the Mexican army, of which Arista was commander-in-chief, and by whom he was subsequently intrusted with the command at the siege of Monterrey. After a spirited defence of that city he was compelled to surrender it to the United States forces, under Gen. Taylor, and signed the treaty of capitulation on behalf of his government, Sept. 24, 1846. Since then Ampudia has ceased to occupy a prominent position in the Mexican army, his conduct having caused much dissatisfaction, as he was held responsible for the unwillingness to fight of some of the Mexican troops under his command. For some time he was even placed under arrest, but was subsequently released.

AMPULLA, a Roman vessel, like a bottle. The Romans took an ampulla of oil with them into the bath-room to anoint themselves after bathing. It was also used for holding wine and water at meals. It was generally made of glass or earthenware. The dealer in bottles was called *ampullarius*. Many of these ampullæ are preserved in collections that are now extant. They have all narrow mouths, and are more or less globular. The *ampulla chrimatis* in the Roman church is the vessel wherein the oil for anointing catechumens and dying persons, and also wine and water for the Lord's supper, are preserved. The *ampulla Rhemensis* (*la sainte ampoule*) was a glass flask filled with holy oil, which, according to tradition, was brought down from heaven by a dove, at the time of the cor-

onation of Clovis I., at Rheims, A. D. 496. The sceptical account says that the story was fabricated in the 9th century. From that time, if not before, down to Louis XVI., all the kings of France were anointed by the oil contained in the sacred ampulla. During the revolution, in 1794, the ampulla was wilfully broken in pieces, and its fragments thrown away. A pious person preserved one of the pieces, in which was a little of the oil, and after the restoration of the Bourbons it was delivered up to the Archbishop of Rheims. Charles X. was anointed from it, and the oil then gave out.

AMPURDAN, a district of Spain, in the province of Catalonia, between the river Ter and the town of Rosas. For richness of soil and high cultivation it is unequalled by any of the districts in the province.

AMPURIAS, CASTELLO DE SAN MARTIN DE, a little hamlet and castle of Spain, in Catalonia, occupying the site of a large and flourishing city. It has a small harbor in the gulf of Rosas, and is about 24 miles from the city of Gerona.

AMPUTATION (Lat. *amputare*, to cut off), a technical term in surgery, applied to the operation of cutting off an injured or diseased portion of the body, to prevent disease from spreading to the more vital parts of the economy and causing death. Amputations of the leg or the arm, the foot or the hand, the breast or the tongue, or any organ which, being hopelessly mutilated or diseased, is useless in itself, and threatens to become dangerous to the health of the whole body, are frequent and successful operations in our time. The human organism is so constituted that whatever seriously affects any one part for a certain period, gradually affects the whole; and if the general organism be affected for a time, some local organ is eventually more particularly affected than the rest. Local diseases, therefore, if neglected, may affect the constitution, and constitutional disease result in local affections of a serious nature. Hence a correct diagnosis of the nature of a local disease is an interesting point of medical science, in order to decide upon the propriety or impropriety of amputation; for where the local disease is caused by certain kinds of constitutional affections resulting in *fungus hamatodes*, or in cancerous degeneration, it is generally deemed useless and sometimes even worse than useless, to remove the diseased part, as the life of the patient cannot be prolonged by the operation; but where the disease is purely local, or the constitution generally good, though affected by a local disease of a scirrhus nature, the life may generally be preserved by the removal of the diseased part. In such cases the loss of a limb by amputation is deemed preferable to the almost certain loss of life, by the progress of the disease from less vital to more vital portions of the organism. The art of surgery is now so perfect, that almost any kind of operation may be safely, easily, and rapidly performed by an accomplished surgeon. This was not so formerly. In

ancient times, amputation was a dangerous experiment for want of means to prevent excessive hemorrhage. The anatomy of every part and the circulation of the blood are now familiar to educated surgeons and physicians. The circulation can be easily controlled by compression, and the largest vessels tied almost as soon as they have been divided; so that hemorrhage can be prevented and a limb removed without the loss of a large quantity of blood; often with the loss of a few drops only, and never more than a few ounces.—The ancients cut through the flesh with a red-hot knife, to check the flow of blood, and after removing the limb, dressed the wound with scalding oil to sear the parts completely; hoping by these means to prevent hemorrhage. For a time the operation seemed successful, as the surface of the wound was converted into an eschar which stopped the bleeding; but the eschar being merely charred dead matter, was at length thrown off by the living parts beneath; and then the blood-vessels being opened, hemorrhage took place and the patient died from loss of blood.—Celsus gives directions for stopping hemorrhage, by taking hold of the blood-vessels to tie them in 2 places, and then divide the intermediate portion; but this does not apply to amputation properly so called, for the practice of the ancients was to amputate only such parts as were already mortified or dead; and in such cases the needle and ligature are useless. The present method of preventing hemorrhage in cases of amputation by taking up the divided artery, and placing a ligature around it, is a modern and a most important improvement in the art of surgery.—Nor is it less important to prevent the loss of blood during the operation than immediately after; for so large are the trunks of the main blood-vessels that supply the limbs, so great the quantity of blood that flows from them in a short space of time, that life would be endangered if this flow of blood were not controlled during the operation. This is easily effected by the application of the tourniquet, an instrument invented in the 17th century; and where this instrument is not in use, or easily procured, the same result can be obtained by the *garot*. This is made by placing a suitable compress on the main artery, and another on the opposite side, with a bandage over them surrounding the limb, and then applying the handle of a knife or a small cylindrical piece of wood between the bandage and one of the compresses, which handle, by being turned, will tighten the bandage and compress the artery, so as to check the flow of blood, as much as is required. A strip of card-board, curved to suit the form of the limb, and placed under the handle, will prevent the skin from being caught in folds and pinched by twisting the bandage. The tourniquet, however, is preferable and now generally used. The invention of chloroform has rendered amputation a comparatively painless operation, and when properly administered it is perfectly

safe and simple. Accidents, however, may occur where chloroform is not administered by competent persons, and the patient is exceedingly susceptible to the influence of narcotics. This renders prudence and experience necessary in the use of chloroform, with persons of peculiar constitution.—Amputations are very properly divided into two orders, technically termed "primary" and "secondary." These denote the state of the health of the patient, and the length of time elapsed since the accident occurred. When the patient is of robust health and full of blood, the accident being recent and of a serious nature, the operation is termed "primary;" when the patient's health has been reduced from long suffering and confinement in consequence of the disease or injury which calls for amputation of a limb, the operation is called "secondary;" and, strange as it may seem to the uninitiated, primary amputations are more dangerous to life than secondary, other things being equal; that is to say, that amputation of the thigh, for instance, is more dangerous where a very strong, muscular man has had his leg suddenly crushed and injured so hopelessly as to require amputation above the knee, than where a man of weaker constitution has met with a similar, but less violent injury, which may have given hopes for weeks or months that it could be saved, but finally takes a bad turn and is condemned to amputation. The man, though weak, will bear the operation well, and almost certainly recover, while statistics show that only three out of five recover in what are called "primary" amputations of the thigh. After the limb has been removed, the wound may heal naturally, either by what is technically termed "first intention," without suppuration, or by "second intention," after a certain process of suppuration, granulation, and cicatrization; or the healing process may be retarded by complications which require the constant care and supervision of the surgeon. When the wound is thoroughly healed, the general constitution often undergoes a change. The temperament becomes more vigorous and active, especially where one of the lower limbs has been removed almost entirely; and this results from the fact of the digestive organs and the more important viscera of the organism remaining equally active in their functions, while the parts to be supplied with blood and innervation are diminished, perhaps one-fourth or little less. The same amount of blood travels over a less amount of surface, the pulse becomes more rapid, and the respiration also. A person of phlegmatic temperament may thus become apparently sanguineous, and one who was previously sanguineous may be troubled with an excess of blood and consequent vitality, requiring careful diet and abstemious habits to prevent excitability, congestion, and a tendency to apoplexy. Where the body had been previously weak the health is very much improved; and persons habitually spare and thin, before the operation, become stout and strong.

In many cases, therefore, amputation not only saves the life of the patient, but improves the general health surprisingly; but where improvement is not produced by this natural increase of energy and more rapid circulation of the blood, abstemiousness and moderation are essential to the health of the mutilated organism and the modified equilibrium of its functions.

AMRAN, a town and fort in Hindostan, in the dominions of Guicowar, about 18 miles N. E. from Jooria, on the gulf of Cutch.—Also a mountain range in S. E. Afghanistan, some of the summits of which reach to a height of 9,000 feet.

AMRITSEER, or AMRITSAR, known by several other names, an ancient town of the Sikh country, in the valley of the Indus. There is in the town an extensive tank, built by Ram Das, a *Gooroo* or holy man of the Sikhs. In the course of time, the name of Amritseer, the pool of immortality, was transferred to the whole town. In the centre of the pool is a temple, sacred to Govind Singh, the last of the *Gooroo*s. It is a place of considerable trade; one of the commercial depots of north-western India. It is an open town, but Runjeet Singh built a fort, and made a canal from the Ravi. The presence of the tank and the temple, with probably tradition of past greatness, have made it the holy city of the Sikhs. Pop. 115,000.

AMRU BEN EL AS, one of Mohammed's early proselytes, and a distinguished Moslem warrior, died A. D. 668. He belonged to the Koreishites, and in early life was furiously opposed to Mohammed, whom he ridiculed in epigrams and satirical verses, and even attacked those of the new faith who had settled in Abyssinia. At last, however, he was converted, and his zeal in behalf of his new faith, was as uncompromising as his opposition had been. He carried his conquering arms into Egypt, and at the head of only 4,000 men, took Pelusium, and founded old Cairo. He soon laid siege to Alexandria, and distinguished himself as much by his personal valor, as by his skill and conduct as a general. He was present in the assault, and in an attack on the citadel was taken prisoner with a faithful slave. Being brought before the commander of the fortress, he was interrogated, and his daring carriage created an impression that he was a person of consequence. But his slave, striking him in the face, ordered him to be silent in the presence of his betters, and this astute device saved his life. He was sent back to the Mohammedan camp, with a proposition for a truce. This was refused, and the city was taken with a loss to the Arabs of 23,000 men. Amru's mind was sufficiently civilized, and his influence with his troops great enough, to spare the city. But the orders of Omar subsequently caused the conflagration of the library, although the extent of injury done by the barbarous act is matter of doubt. Amru became emir of Egypt, and his firm government conciliated the inhabitants. He projected a canal,

for uniting the waters of the Nile with the head of the Red sea. Amru was recalled by Caliph Othman. In his absence, the Alexandrians revolted, and surrendered the city to the Greeks; Amru returned, and once more reduced the city, and spared the inhabitants. The Caliph Moawiyah owed his accession to Amru, who declared for him in preference to his rival Ali. Amru is justly accounted not merely an able general, but an accomplished politician.

AMRU EL KAIS, an Arabian poet, author of one of the seven *Moallacah*, poems of the Pagan pre-Mohammedan era, which were suspended to the Oaaba, whence their name *Moallacah* (Arabic for *suspended*). He was an opponent of Mohammed, and wrote satirical verses against him. Lette published the *Moallacah* at Leyden in 1748, in Arabic, and Sir William Jones, the English translation, London, 1782. The poem is purely imaginative. The latest edition is that of the Baron Mac Guckin Slane, Paris, 1887.

AMRU BEN LEITH, second and last Suffaride sultan of Persia, A. D. 879. For a time he rendered the customary homage to the reigning caliph, who held him in esteem. But in a few years, having given dissatisfaction at Bagdad, his name was ordered to be omitted from the public prayers, of which a civil war was the consequence. He was beaten by the caliph's generals, and took refuge in Kerman. Having succeeded in conquering the rebel Refyi, he made his peace with the caliph by giving him up. Ismael, the Samanide, now raised an army in Persia, revolted against Amru, fought a battle on the river Gihon, and having routed his army, took Amru himself prisoner, who was thrown into prison, and with him, after a reign of 23 years, terminated the short dynasty of the Suffarides.

AMRUM, AMROM, or AMROMOE, an island in the North sea, $2\frac{1}{2}$ miles west of Schleswig, to which it belongs; pop. 600, principally oystermen. Only its interior and eastern part can be cultivated. The strait between Amrum and Foehr is often dry at low tide.

AMSBERG, AUGUST PHILIPP CHRISTIAN THEODOR VON, a German functionary, and president of the Brunswick railway and post-office departments, born at Rostock, July 17, 1789. He was first a merchant, but in 1818 entered the army, and took part in the campaigns against Napoleon. After his return, he was made secretary to the board of finances of the duchy, and councillor of the exchequer, and from his thorough acquaintance with the laws of trade and commerce, rendered valuable assistance in the negotiations with reference to the Hanoverian custom-house. He was one of the originators of the system of railroads in Germany, and even in 1826 proposed a plan for a railway between the Hanse towns and Hanover and Brunswick. In 1833, he was appointed director of the exchequer, a position from which he retired in 1850, to take the direction of the railroads and post-offices of the duchy.

AMSDORF, NICOLAS VON, bishop of Naum-

burg, a German reformer, contemporary with Luther, and an opponent of Melancthon, born Dec. 3, 1483, died May 14, 1555. He was educated for the church, and early acquired distinction in theology. He seems to have been the confidant of Luther, and attended him in some of his early trials as a reformer. He was a sort of apostle of the reformation, going (1524) to Magdeburg, (1528 and 1531) to Goslar, and to the principality of Grubenhagen (1534), as the expounder and defender of the principles of the reformation. He was fond of controversy, and this peculiarity more than once involved him in personal difficulties with his friends. He contended that good works were not only not necessary, but prejudicial to salvation. In the attempt to secure concord between the Lutherans and the Zwinglians (1536), Amsdorf violently opposed the movement, probably full as much on account of his personal hostility to Melancthon, who was the author of the *Wittenberg Concordium*, as from any scruple of conscience. In 1543 he was appointed bishop of Naumburg, and was consecrated by Luther, who boasted of the uncanonical manner in which the service had been performed, as he himself says, "without suet, lard, tar, grease, or coals." But Amsdorf was never at ease in his bishopric. The novel procedure of his consecration involved him in a contest with Von Pflugk, who had been regularly appointed by the chapter to the same office. Amsdorf was a violent opponent of the Augsburg interim, and was one of the leaders in the adiaphoristic controversy. A violent Lutheran, and a vehement opponent of compromises, he is entitled to a prominent place in the history of the reformation.

AMSLER, SAMUEL, one of the first German engravers, born Dec. 17, 1791, at Schinznach in Switzerland, died May 18, 1849, at Munich in Germany. He was professor of the fine arts at the academy of Munich, and made a great number of fine engravings from Michel Angelo, Raphael, and Thorwaldsen.

AMSTEL RIVER, a small river of the Netherlands, N. Holland, formed by the union of the Drecht and Mydrecht. It passes through the city of Amsterdam, entering it on the S. E., and after a winding course, leaving it on the N. side, and about 10 miles further N. unites with the Y.

AMSTERDAM, otherwise **AMSTELDAMME**, a noted commercial city and port of Holland, capital of that kingdom, and situated on the south bank of the Y, an inlet or arm of the Zuyder-Zee, where that is joined by the river Amstel. Lat. $52^{\circ} 22'$ N. long. $4^{\circ} 58'$ E. As a city Amsterdam does not date very far back. So late as the beginning of the 13th century it was but a small fishing village, subject to the lords of Amstel, who had a castle near. It was constituted a town in the middle of the 13th century; was taken possession of by William III., count of Holland, in 1296; fortified in 1482; was for a long time strongly

Catholic (the Protestant citizens having been driven out by the duke of Alva), and joined the confederation of the United Provinces in 1578. Free toleration was now granted to all sects and religious beliefs, and with additional privileges granted to its city in 1581, by the prince of Orange, and the ruin of its rival city, Antwerp, in 1648, it soon reached a highly prosperous state, and has since advanced with but few and short-lived interruptions, till it is at present one of the wealthiest cities in the world. The form of the city is that of a crescent, the arms projecting into the Y, and thus forming the port. The principal mouth of the Amstel divides the city into the old and new sides. The docks, which are extensive, are built along the inner side of the arms which form the port. The land side of the city is surrounded by walls which have become dilapidated, and by a ditch, 30 yards wide, lined with trees, which make a pleasant promenade. The ramparts have been pulled down. The 28 bastions have been converted into windmills; and the city relies for defence against attacks chiefly upon the facility with which the surrounding flat country can be flooded from the sea. Amsterdam stands upon flat, soft, marshy ground. The houses are built upon piles, driven through this surface soil to the depth of 40 to 50 feet, into a subsoil of clay and sand. The canals by which it is intersected, and on which all heavy freights are transported, divide the city into 95 islands, and are crossed by 290 bridges. The city is from 8 to 9 miles in circumference, and covers about 900 acres of ground. The walls have 8 stone gates, each named after the town toward which it opens. The lower and older portion of the city is irregularly built. The streets are narrow and the houses poor. The upper and central portions are handsomely built. The streets run in parallels along the walls, and are consequently semicircular. In the centre of each is a canal, lined with clean paved quays, which are planted with trees. Three streets in this portion of the city are especially noteworthy for their length and breadth, and the elegance of the buildings which line them. These are the Heeren, Keyzers, and Prinzen Graacht. Each is about 2 miles long, and 220 feet broad. As with other streets, through the centre of each of these runs a canal. The principal shops of Amsterdam are in the Kalvers straat, the Nieuwendyk, and the Warmois straat. The Jews, of whom there are 20,000 in the city, live in the dirtiest part. The houses of Amsterdam are built of brick, are 4, 5, and 6 stories high, stand with their gables to the street, are mostly entered by flights of steps in front, and are surmounted by a forked chimney stack. Many of the poorer people live in the basements or cellars of the houses of the more opulent. Others live constantly upon the water, in apartments built upon the upper decks of their trading vessels. Amsterdam has many splendid public buildings. The most magnificent of these is the stadthouse (town hall), once the palace.

It is built of stone, was begun in 1648, and completed in 7 years; rests upon 13,659 piles, driven 70 feet into the ground; is 262 feet long, 206 feet broad, and 108 feet high; and is celebrated for its great hall, or ball room, 111 feet long, 52 feet wide, 90 feet high, and lined throughout with white Italian marble. The next most remarkable building is the Nieuwe Kerk (new church), founded in 1408, 350 feet long, 210 wide, and lighted by 75 windows, many of which are magnificently painted. It is noted for containing the tombs of Vondel, the famous Dutch poet, and of Admiral de Ruyter, the Dutch admiral who sailed up the Medway to Oatham, and there burned the English fleet. The justiciary hall, opened in 1836, of the Grecian order of architecture, is the finest building in the city. Other buildings are, the exchange, founded in 1608, the arsenal, built on the island of Kattenburg, and the old church, which, founded in the 14th century, contains the tombs of many of the Dutch admirals, and an organ said to be second only to that of Haarlem. Churches are numerous. The Calvinists (state church) have 10; the Catholics 16; the evangelical Lutherans 2; and various other denominations several. Amsterdam has also a great number of excellent charitable institutions, there being 40 under the charge of particular denominations, others belonging to the city. They include hospitals for the infirm, the aged of both sexes, widows, orphans, foundlings, the insane, the poor, &c. There are also various excellent educational institutions, some denominational in their character, others general, but most excellently conducted. The *Athenaeum illustre* has professorships of art, law, medicine, and theology, a school of anatomy, a botanic garden, and free library. The city Latin school is a fine institution. There are besides, medical schools, and schools for educating young men for the ministry, in the various denominations which have existence in Holland. The royal academy of fine arts, founded in 1820, has 450 pupils. There is a music school, a naval school, a royal Dutch institution for science, literature, and fine arts; and another called the *Felix meritis*, which has 400 members, and is in a very flourishing condition. Finally, there is a museum of pictures, founded in 1798, containing a fine collection of the works of Dutch masters, and a remarkable collection of prints, contained in upward of 200 portfolios. The city is governed by a senate or council of 36 members, and 12 burgo-masters. The members of the council sit during life, and themselves fill the vacancies which occur in their own body. Amsterdam is more noted as a trading than as a manufacturing town. Its chief manufactures are in tobacco, soap, oil, cordage, and canvas. There are various refineries of sugar and salt; glass works, breweries, and distilleries. Also manufactories of steam-engines, and machinery, and ship-building. The exports from the port

amounted in 1840 to \$31,125,000. Imports to \$39,720,000. The chief articles of export are butter and cheese; of the former, the amount of \$2,115,000 being exported; of the latter, \$2,540,000; other exports consist of refined and raw sugar, coffee, spices, thread, oil, dyes, colors, corn, and meal. The exports to Germany and the Rhine countries amount to nearly one-third of the whole; but the imports thence are very limited. By the Amstel river, the Zuyder-Zee, and various canals, Amsterdam has water communication with all parts of Holland. By rail, it is placed in connection with Haarlem, the Hague, and Rotterdam on the one hand, and Utrecht, Arnheim, and Prussia generally, on the other. A canal called the Nieuwe Diep connects Amsterdam with the North sea, at the Helder. This canal, completed in 1825, is 50 miles long, 125 feet broad at the surface, 30 feet broad at the bottom, and 21 feet deep. Through it large ships enter the port of Amsterdam. In 1840, 4,177 vessels, tonnage 437,695, entered the port, and 3,981, tonnage 423,060, cleared. Pop. 1857, 259,873.—Among the distinguished men born in Amsterdam may be mentioned Spinoza, Swammerdam, and De Ruyter.

AMSTERDAM ISLAND, a small island in the S. Indian Ocean, in lat. 38° 53' S. long. 77° 37' E., 60 miles N. of St. Paul's Island, discovered by Van Vlaming, 1696, 4½ miles long, 2½ broad, 2,760 feet high. It contains the extinct crater of a volcano, and numerous hot springs. The waters abound in fish. It is occasionally visited by whale ships, and serves as a new point of departure for outward bound Indianmen.

AMSTERDAM, New, a town and harbor of British Guiana, situated in lat. 6° 14' N. and long. 57° 31' W., at the junction of the Berbice and Orange rivers, and near the mouth of the former. It was founded by the Dutch, is built up in Dutch style, the streets intersected by canals, which being emptied at each turn of tide, aid materially in preserving the health of the place. Defended by 3 forts. Population, 1,600.

AMTOCHITKA, one of the most westerly of the Aleutian Islands, about 60 miles in length. It is mountainous, generally unproductive, and closely surrounded by numerous islets and rocks.

AMUCHTA, one of the Fox group of the Aleutian Islands. It contains an extinct volcano.

AMUCK (Javanese, *amook*, to kill). The running amuck is a Malay custom. The natives by a long-continued and excessive use of opium at length have their features sharpened, their skin drawn over their bones like parchment, and become entirely and ferociously mad. Armed with their formidable dirk-knife, they rush in frenzy from their houses, sometimes naked, and leaping along the crowded streets, stab, bite, and curse every one who chances to be in their path. As soon as a person is seen in this state everybody in terror proclaims the news, and

the cry of "amuck" rouses the population like the cry of "fire" or "mad dog" in western cities. Every man snatches the first weapon that comes to hand, and follows the path of the common enemy. Long spears are, however, the favorite and more common weapon, and with these they pen the wretched maniac into a corner, and lance him to death as they would a tiger. More than 40 persons are sometimes killed by one of these madmen before he can be checked.

AMULET, a preservative against occult and mischievous influences. Amulets are made of various substances, as stone, metal, &c., and were first known, it is believed, among the Arabs and the Jews. The latter carry about them bits of parchment with passages from the Bible as amulets, to drive away diseases, and the Moorish priests wore similar amulets with inscriptions from the Koran. The early Christians made amulets of the wood of the cross, or of ribbons with a text of Scripture written on them, and, to this day, the Roman Catholics call their various little relics, &c., amulets. The idea that an amulet carried about the person has the power both of repelling and healing diseases still prevails in the mind of many persons. Even the celebrated Robert Boyle (who flourished in the latter half of the 17th century) does not hesitate to declare that he once experienced the efficacy of such an amulet in his own case. The anodyne necklace, made of beads from the roots of white briony, which is sometimes hung around the neck of infants for teething purposes, is an instance of the still surviving confidence in the medical virtue of amulets. Many other examples might be quoted. The faith of the ancients in amulets is to some extent revived in our days by some professors of animal magnetism, such as the inventors of galvanic rings, &c.

AMURATH, or **MURAD**, the name of several Turkish sultans. I. Born in 726 of the Hegira, A. D. 1326, died A. D. 1389. He succeeded his father Orchan in 1360 in the government of the Turkish dominions in Asia. The first act of his government was to put down an insurrection in Galatia, after which he turned his attention and his arms to Europe. Here he overran the country as far as the Balkan, and took Adrianople, where he fixed his residence for a time, beautifying the city by the construction of a mosque and other public buildings. In 1365 the first treaty of peace was concluded between the Ottomans and the republic of Ragusa, which put itself under the protection of Amurath. On the occasion of ratifying this treaty, Amurath, ignorant of the art of writing, stamped it with his 3 fingers which he had dipped in ink for the purpose. This subsequently became a sign manual, and was called *toughra*. Pope Urban V., alarmed by the progress of the Ottoman army, preached a crusade against them, but Amurath surprised the Christian forces by night and cut them to pieces. The peace which he had concluded with the Greeks, and which had been observed by him, being thus broken, he continued the war for several campaigns

without any decided results, and then returned to Asia in 1371. He returned again to Europe, and having subdued Serbia, Wallachia, and Bulgaria, he settled at Adrianople, and during an interval of 6 years, permitted the Greek empire to taste the blessings of peace. He employed himself in organizing his army; and formed the corps of spahis, instituting a system of military fief as the reward of their services. In this there was considerable analogy with the feudal system, and possibly he was assisted by renegade Christians in his plans. The spahis were lords of the fief on tenure of military service, furnishing men at arms in proportion to the revenue of their possessions; the soil was the property of the cultivator (rayah) and descended to his heirs, but was alienable only by consent of the lord. The spahis were bound to reside on their property in time of peace, and had the collection of the revenues arising from a tax laid on the produce of the soil. The fiefs were hereditary in a right line, and in default of heirs escheated to the sovereign, and were then conferred by the pasha of the province on another spahi. This system, well adapted to the intelligence and simplicity of a nation of warriors, was more liberal than the feudal system of western Europe, as it gave the rayahs decided rights, elevating them above the condition of serfs. In after years, as the empire fell into decay, the local proprietors avoided their burthens of military service, and the rayahs were reduced to an inferior position. In 1776 the military tenure was commuted for a small quit rent. The Greek emperor John Palæologus, seeing himself unable to cope with the new power arrayed against him, entered into friendly alliance with Amurath, and sent his son Theodore to his court to learn the art of war. The sons of the 2 emperors entered into a conspiracy against their fathers, and levied an army. Amurath advanced alone to the ranks of his rebellious son and ordered the soldiers to return to their duty. Unable to resist the mandate of their terrible ruler the men obeyed, and Amurath put his son Saoudji to death. In Asia Minor his power was not so firmly settled but that he had to contend with several insurrections, which, however, he suppressed. Lazarus, prince of Serbia, in conjunction with Sisman, prince of Bulgaria, Amurath's father-in-law, renewed the effort for independence, and during Amurath's absence in Asia gained several advantages over his generals in Europe. The arrival of Amurath, however, turned the tide of victory, and at length he took Sisman prisoner, whom he deposed and confined. Lazarus, however, continued his resistance, and the armies met on the plains of Kossova. Amurath, under the influence of a dream that he had been assassinated, was at first unwilling to hazard an engagement, especially as his troops were far inferior in numbers to the Servians. But the counsels of his son, the fiery Bajazet, prevailed, and the signal for the engagement was given. After a bloody contest, the Servians

were totally defeated at all points, and Lazarus himself was taken prisoner. Amurath examined the field after the battle, and while congratulating his attendants upon the victory was struck by the hand of the assassin. The wound was mortal, and Amurath's dream was accomplished. The assassin fell under the blows of the janizaries, but sold his life dearly. He proved to be Milosh Kobilowitch, son-in-law of Lazarus. II. Born A. D. 1404, died Feb. 9, 1451. He was the son of Mohammed I., and in 1422 succeeded his father on the throne. He at once concluded an armistice for 5 years with Sigismund, king of Hungary. Manuel, the Greek emperor, refused to conclude a peace, unless Amurath gave his two brothers as hostages, failing which he threatened to set at liberty Mustapha, son of Bajazet-Ilderim, the legitimate successor to the throne. Amurath refused, and the Greek admiral, Demetrius Lascaris, was at once sent to land Mustapha near Gallipoli, to which Demetrius laid siege. Mustapha himself advanced toward Adrianople with a constantly increasing army, and encountered the forces of Bajazet Pasha, whom Amurath had sent against him. Mustapha advanced toward the sultan's troops, and, stating who he was, ordered them to lay down their arms. The sultan's troops did so, and Bajazet Pasha was taken prisoner and put to death. When Amurath received the intelligence of this disaster he accepted it as a stroke of affliction sent by Providence, and went to visit the great sheik Bokhari, whose prayers he besought. The sheik accordingly prayed, and at the end of 8 days' incessant prayer he saw Mohammed, who announced that Amurath should be victorious. The sheik bore the welcome message to the sultan, and himself girded on the royal sabre. Amurath now assured of victory, went forth against Mustapha, who when in sight of the enemy was suddenly seized with a bleeding at the nose, which lasted for 8 days, and so weakened him that he was incapable of action. At last, deserted by his followers and betrayed by his servants, Mustapha was taken prisoner and put to death. The emperor Manuel, now alarmed for himself, sent an embassy to the sultan to settle terms of peace. Amurath, however, was not to be appeased. He appeared with a powerful force before Constantinople, and increased his army by a proclamation of his intention to abandon the city and all the booty to the assailants. The assault was at length made, in an auspicious hour fixed by the sheik Bokhari, whose presence with an immense crowd of dervishes in the army, inflamed the Mohammedans to the highest pitch of ardor. The city was in deadly peril, when, according to Greek writers, a beautiful virgin dressed in a white robe appeared in mid air, and threw the Mohammedan army and their redoubtable sheik into such a panic that Amurath was obliged to retire. The sudden appearance of another Mustapha in the field, brother of the dead pretender, and whose career promised at the outset to be equally successful,

also had its influence on the mind of Amurath. This new pretender was, however, speedily put down and executed. On the death of the emperor Manuel a treaty was concluded with John Palæologus, his successor, by which the Greeks consented to pay tribute to Amurath, and surrendered several towns on the Black sea and on the Strymon. The treaties of peace with Wallachia, Styria, and the Emperor Sigismund were also renewed. In 1429 Amurath made himself master of Thessalonica, and in 1431, of Yanina. Notwithstanding the armistice between Amurath and Sigismund their friendship was only superficial; and Amurath, who had suppressed the revolts of Caramania and Servia, and made satisfactory arrangements with other provinces of his growing empire, turned his attention to the politics of central Europe, in which, with the view of repaying Sigismund and his successor Albert for their insidious dealings with his Turkish subjects and allies, he interested himself, and endeavored to influence the election of Casimir, king of Bohemia. Failing in this he laid siege to Belgrade, which was defended by the Hungarian warrior, John Hunnyades. Amurath was repulsed, and the Ottoman arms now sustained a long series of reverses from the invincible Hunnyades, known in Turkish history by the name of Yanko. Amurath at last purchased a 10 years' truce of the Hungarians by great sacrifices, and the treaty of Szegedin was solemnly sworn to by the high contracting parties on the Gospel and on the Koran. The death of his son Aladdin, to whom Amurath was tenderly attached, now plunged him into such distress of mind that the great monarch determined to abdicate in favor of his son Mohammed, who was only 14 years of age. Amurath retired to Magnesia, where he surrounded himself with all the voluptuous luxuries which could charm the leisure of a Turkish gentleman. The Christians, in the belief that the moment of their opportunity had now arrived, broke the solemn peace, for which the papal legate gave them absolution, and poured into the Turkish dominions under the command of Ladialaus and Hunnyades. Amurath was recalled from Magnesia, and forced to take the command of the army. Hoisting the treaty at the end of a lance he encountered the Christians. In a personal contest he dismounted the Hungarian king Ladialaus, whose head was cut off and displayed on a lance to his soldiers. Affrighted at the sight they fled, notwithstanding the efforts of Hunnyades to restore the battle. Again Amurath sought retirement, and was again called out to put down a revolt of the janizaries. Hopeless of gratifying his wish for ease he marched against Greece. After subduing the Morea, and putting it to tribute, he encountered stubborn resistance in Albania from the hero George Castriote (Scanderbeg), who, with the assistance of the Venetians, was able to postpone for a time the fall of his native country. A new irruption of Hunnyades into Servia compelled

Amurath to retire from Greece, and a battle was again fought on the plains of Kossova, in which the Hungarian army, after a desperate defence of their intrenched camp for 8 days, was entirely routed with prodigious loss. Amurath died suddenly; according to Turkish moralists he was warned by a dervish of the short time allowed to man to prepare himself for the next world, and to escape the consequences of his sins in this. Orientals are open to sudden impressions. The words sank into his soul, and had such power over his genius that his spirit faded away before the prophetic words.

III. Born 1545, died Jan. 1595, succeeded his father, Selim II., in 1574. His first act was to put his 5 brothers to the bowstring. His reign is signalized in Turkish history by the arrogance, with which the Turks treated the representatives of the European powers. The ambassadors were compelled to observances of etiquette degrading to their sovereigns, and the agents of the embassies were subjected to personal indignity, the dragoman of France having been compelled to embrace Islamism. In the reign of Amurath III. the plague ravaged Turkey and Italy. The war with Austria was continued, and a war which had commenced with Turkey was terminated in 1590 by a treaty which surrendered Koordistan, Georgia, Shirvan, Tabreez, and part of Azerbaijan. A depreciation of the coinage resulted in a revolt of the janizaries, who demanded the heads of 2 officers of state, whom they charged with having been the authors of the depreciation. This revolt extended itself throughout the whole Turkish empire, and laid the foundation for the disorder and insubordination which rendered the janizaries so celebrated. The war with Austria continued with varying success until the end of his reign.

IV. Born 1611, died Feb. 8, 1640, succeeded his uncle, Mustapha X., Sept. 1, 1623, at the age of 12. At the commencement of his reign, the empire was in a state of the most deplorable disorder. The provinces were rent by insurrections and revolts; the capital convulsed by the constant mutinies of the janizaries, who were not to be pacified, save by an increase of pay or by the abandonment of some unfortunate vizier to their brutality; war was desolating the frontiers of the empire. Assuming the sceptre at so early an age, Amurath had little power to amend the state of his kingdom, but with experience came a vigor which was destined to make the hardiest tremble. In 1638, Amurath commenced the siege of Bagdad, which had long resisted the efforts of the ablest Turkish generals. On Dec. 24, 1638, a breach having been made, the assault was made and the city of the caliphs passed into the power of the Turks. The garrison of the citadel capitulated, but not evacuating the city at the hour promised, Amurath would not abridge his soldiers the customary right of massacre, and 30,000 Persians perished after the capitulation. Amurath abandoned himself to the most outrageous drunkenness, his wrath was of the most terrible

character, and his fits of delirious rage were so increased by his passion for drink that his people, his soldiers, and ministers, all dreaded to enter his presence. Such was the terror inspired by his fury that persons on the mere apprehension of his displeasure became senseless with fear. His love of the bottle has been attributed to a nocturnal adventure. He had, in the early part of his reign, promulgated strict laws against the use of wine; one night when making his rounds, he met a drunken fellow who ordered the sultan to give place to him, and when Amurath, astonished, said he was the padishah, the drunkard only professed his indifference to padishahs in his ability to buy up Constantinople and all that was in it. The monarch ordered that he should be taken to the palace, and the next morning interrogated him as to his meaning. With returning sobriety Bikri Mustapha had not lost his courage, for pulling a bottle from beneath his coat, he vaunted its quality, and told the sultan that here was that which could give him more than all the world. The sultan was persuaded to try the liquor, and was so much charmed with its effects, that he made Bikri Mustapha his boon companion, and ever after evinced the deepest devotion to the wine cup.

AMUSETTE, a small light cannon carrying a ball of one pound weight, and formerly used for service in mountainous countries. This gun was highly esteemed by Marshal Saxe, but has now gone entirely out of use.

AMUSSAT, JEAN-ZULÉMA, a distinguished French surgeon, born at St. Maixent, in the department of Deux-Sèvres, Nov. 21, 1796. He commenced his career as a sub-assistant surgeon in the French army, and afterward became assistant surgeon at the hospital of La Salpêtrière, under Dr. Esquirol, and demonstrator of anatomy at the faculty of medicine of Paris. Dr. Amussat has invented and improved as many as 30 different surgical instruments of great importance, and was the first to show the importance of twisting a bleeding artery to arrest the hemorrhage; and also to point out the danger of phlebitis, or inflammation of the veins, from the admission of air into them during an operation. His most important works are, "Researches relating to the Nervous System," published in 1825; "Synoptical Tables on Lithotripsy, and on Hypogastric Cystotomy," 1832; "Researches with regard to the Introduction of Air into the Veins," 1839. This and other works by the same author have received the highest prize from the institute of France.

AMYGDALOID, a rock containing almond-shaped cavities. The term is for the most part limited to rocks of the trap variety. The vesicular cavities in these, as in the lavas, are the result of the escape of gases, as the rocks cooled down from a melted state. Subsequently to their formation the cavities have generally become filled with some mineral, as calcareous spar, quartz, agate, chlorite, or a zeolite.

AMYLENE, a colorless and thin liquid, of

specific gravity 0.659, boiling at 102° F.; the specific gravity of its vapor, 2.45. The substance described by Dr. Thompson under this name, is derived by distillation from oil of potatoes or grain with phosphoric acid, is said to boil at 320°, and the specific gravity of its vapor is 5.061. Amylene was discovered in 1844 by Prof. Balard of Paris, by distilling fusel oil with chloride of zinc. It is a compound of 10 atoms of carbon and 10 of hydrogen. It is very volatile, burns with a white flame, mixes with alcohol and ether, and has an odor like that of naphtha, less pungent than that of ether or chloroform. It is recommended as a substitute for these anæsthetic agents, its use being attended with much more pleasant effects, and unaccompanied with any of the disagreeable or dangerous properties of chloroform. It is suggested that the extreme cold produced by its evaporation might cause local anæsthetic effects. A description of the article and its properties was given in a paper read before the medical society of London, Jan. 10, 1857, by Dr. Snow, and published in the London "Lancet," Jan. 17, and also in the "Medical Times and Gazette." Dr. Snow believes amylenes to be the same substance described by Von Reichenbach under the name of eupion, and obtained by him from coal-tar; but other chemists have not succeeded in making it. The mode of preparing amylenes is thus given: "On adding the fusel oil to a concentrated solution of chloride of zinc while they are cold, solution or admixture does not take place; but on applying heat, they mix and form a homogeneous liquid, which begins to distil at a temperature of about 266° F. On redistilling the product thus obtained, the ebullition which commences at 140° F., rises during the process to about 570° F. The most volatile parts of this distillation are to be separated, and agitated with concentrated sulphuric acid, when the amylenes in a pure state will rise to the surface."

AMYOT, JACQUES, bishop of Auxerre, born at Méhun in 1513, died in 1598. After many arduous struggles with poverty and obscurity, he succeeded in acquiring some reputation as a teacher; and through the patronage of the sister of Francis I., Margaret of Berry, he obtained a professorship at Bourges. Subsequently he visited Venice and Rome, with a view of gathering materials for his intended translation of Plutarch and other Greek writers; and on his return to France, he became tutor of King Charles's two younger sons, and was raised to the bishopric of Auxerre, and to the high office of great almoner and curator of the Paris university. The most celebrated of his works, which chiefly consist of translations, is the version of Plutarch. His pure and classic mode of writing exerted a decidedly favorable influence upon the French prose literature of the 16th century.

AMYRAUT, MOÏSE, a French Calvinist theologian, born in 1596 at Bourgneil, in the province of Anjou; was educated at Saumur, where he was himself afterward a professor of

divinity. By his talents and moderation he soon acquired reputation and influence. In 1631, he attended the synod of Clarendon, and was commissioned to present to the king the remonstrances of his brethren against the infraction of the edicts of pacification. In his mission he acted with such judgment and dignity, that he succeeded in relieving the Protestant deputies from the disgraceful obligation of addressing the king on their knees. Although he was a Protestant, his amiable temper and courteous manners commanded the regard of the Catholics, and he was held in particular esteem by Cardinal Richelieu. He endeavored to bring about a complete union between the various Protestant churches; this object he had in view in nearly all his writings, especially in a Latin tract, *De secessionibus ab ecclesia Romana, deque pace inter Evangelicos in negotio religionis instituenda*. Moreover, acting in concert with Richelieu, he aimed at a reconciliation between the Protestants and the Catholic church. The favor and respect with which he was treated by the heads of the French government, Richelieu and Mazarin, are to be ascribed to his opinions concerning the power of the princes. He publicly maintained on several occasions the doctrine of implicit obedience to the sovereign authority, which, indeed, had also been held by the great founders of the reformation. Amyraut was a finished scholar, and wrote Latin and French with equal ease. His numerous writings, which were received with marked favor in his time, are now nearly forgotten, and not easy to be procured. Among the number we may mention, "A Treatise on Religions, against those who esteem them to be indifferent;" "Christian Morals;" "A Treatise on Dreams;" "Against the Millenarists;" "Considerations on the Laws of Nature regulating Marriage."

ANA, as a prefix, a Greek word signifying over again, the contrary, and the like. Its use is exemplified in anabaptist, anachronism, and analysis. As a suffix, it is the Latin termination of the neuter plural of the adjective of three terminations; thus *Justiniana* would be the matters of any sort appertaining to Justinian. In the literature of the modern European nations, it alludes to the collections of the sayings or anecdotes of celebrated wits. The first collection of this kind was the *Scaligeriana*, published at the Hague, 1666, by Vossius, in Latin. The next of the ana was the *Perroniana*, in French, being notes of the conversations of Cardinal du Perron. It appeared in 1669. *Menagiana* and *Thuana* are also celebrated collections in French. French literature of the 17th century is particularly rich in this species of literature. The ana mania lasted about half a century. In England, the "Walpoliana" is the best. German literature is not rich in personal memoirs. The Taubmaniana is the most famous. We have also the Melancthoniana. In England, the records of the prize ring are called "Fistiana" and "Boxiana." American

literature does not much affect this species of title.

ANABAPTIST, a term derived from the Greek *αναβαπτιστης*, signifies literally, re-baptizer, and hence is sometimes applied to all those sects of modern times of which this practice has been a distinguishing mark. The justice of the appellation has never been acknowledged by those to whom it has been applied. In receiving converts to their communion, they administered baptism, not as repeating the sacred rite, but as a valid baptism in place of one which was null and void. Thus, the Baptists repel the name Anabaptists, not, as some suppose, for the mere purpose of repudiating an alleged connection with the fanatics of the reformation, but because it does not represent correctly their practice. They baptize, as they allege, according to the original institution of the rite, and therefore claim to be *Baptists*; they never repeat baptism in the case of any who, in their judgment, have been so baptized; and they therefore deny that they are *Anabaptists*. It may be doubted whether the word as now applied to Baptists, is not always intended as a reproach; certainly it should be excluded, in that application, from respectable modern literature, as giving an unnecessary offence.—The title belongs historically to large classes of people who sprung up in various countries of Europe during the period of the reformation. Though applied to them against their remonstrances, it has become fixed in literature as a historical term, and is too convenient for practical purposes, to be expelled by any considerations of critical justice. Whether these various classes agreed or not in things more essential; whether they were furious and fanatical, or gentle and pious; whether setting up mock kingdoms by force of arms, or conscientiously abstaining from the use of arms altogether, they were alike in the visible thing of repeating baptism, and hence were designated by a common name, and, also, too often visited with common penalties and maledictions. It is the business of the historian to discriminate between these classes, to look beyond names for historical facts, and to redeem from the reproach of many generations, great numbers of people whose faith was in essential harmony with the faith of Protestantism, whose lives were pure, and whose deaths were a rare and honorable martyrdom. In this historical discrimination something has been already effected. Illustrations generally accessible may be found in Burnet's "History of the Reformation in England," Brandt's "History of the Reformation in the Netherlands," Mosheim's "Institutes of Ecclesiastical History," and especially in the "Dutch Martyrology," lately published by the Hanserd Knollys Society, London, under the editorial care of Edward B. Underhill.—Precisely when or where the Anabaptists of the reformation first appeared, whether in Germany or Switzerland, it is difficult, if not impossible to determine. They sprung up like

rank vegetation,—history, which has placed them under ban, would say, like weeds,—under sudden and refreshing rains, after drought and sterility. The solution of the problem is found in the fact that the seeds were in the soil. The better classes of them claimed a descent from the Waldenses, the Wickliffites, and the Hussites, who had struggled for a church separated from the world, and distinguished by the holiness of its members. Consciously or unconsciously, ideas like these must have been working in the minds of multitudes in various countries. When, therefore, the reformation came, opening the Bible to the people, announcing its revelations as the highest law, and inviting the human mind to freedom of thought, these principles acquired sudden and prodigious force. Ardent minds, bent in the direction of a primitive Christianity, and of a social order corresponding thereto, were dissatisfied with the partial reformation which contented Luther and Zwingli, and demanded more. This demand, sharpened by discussion, became a popular movement, and, pushed to its last development, took the opposite directions of a wild, ungovernable, and licentious fanaticism, subversive of all social order, on the one hand, and on the other of a mystical, though sincere and genuine piety, characterized by some harmless eccentricities of faith, and by separation from the world. These parties, so diverse in character and tendencies, went under the common name of Anabaptists, because, as we have already said, they were distinguished by the common, visible badge of re-baptism.—The usual references in illustration of the character of the furious Anabaptists, are the following: In 1521 they made their appearance at Zwickau, and accepting as their leader Thomas Münzer, took part in the peasants' war, and shared its sanguinary results. Münzer and his associates are represented as having claimed a divine commission not only to establish a community of holy persons, but also to extirpate magistrates by the sword. He excited his followers to revolt against the civil authorities, and assured them of the immediate deliverance of Christendom from the grievous oppressions of its rulers. They were totally defeated, May 15, 1525, near Mülhausen, and the leaders were put to death. Itinerant prophets still, however, spread the principles of the sect. They declaimed against the wickedness of the times, and demanded a community of saints, without distinction of rank or office. They claimed an internal light, which was of more value than learning in interpreting divine revelation. No Christian might exercise the functions of a magistrate or take an oath. Property was to be shared in common among the faithful. In 1538 they began to concentrate their operations at Münster. John Matthias of Haarlem, and John Boecold of Leyden, were leaders. They had gained over to their cause Rothmann, the preacher who introduced the reformation into that city, and Knipperdolling, a principal citi-

zen. Seizing the arsenal and the senate house, they placed Matthias at the head of affairs, and his authority became arbitrary and complete. The inhabitants were trained to military duty, the fortifications were strengthened, the faithful were invited to come from every quarter to aid the struggles and share the triumphs of Mount Zion, from which they were to proceed to the conquest of the world. Count Waldeck, prince and bishop of Münster, surrounded the city with an army. Matthias sallied out and gained signal advantages. His fanaticism rose with his success, and issuing forth again with only 80 followers, relying on their spiritual pretensions, they were all put to death. John Boecold was now raised to the throne of David, in obedience to divine commands made known in visions. He wore a crown, clothed himself in purple, coined money, and appointed judges. But the fanaticism, when it had reached the height of spiritual folly, passed by an easy transition to license and sensuality. The obligations of matrimony were declared invasive of spiritual liberty, and freedom of divorce and licentiousness followed. King John himself multiplied his wives, honoring, however, one of them only as his queen. The example of the monarch was not lost upon the people, and the name of Münster, during the reign of the Anabaptists, has passed to history as the synonyme of unbridled and indecent lust. The city was taken June 24, 1535, after a brave defence, in which Rothmann was slain. John Boecold, and Knipperdolling, and Krecting, leading associates, were tortured with red-hot pincers, and then hung up in iron cages, which are still preserved in Münster. Thus in 15 months perished the kingdom of the Anabaptists.—Even now, however, the delusion had not ceased. It subsided, indeed, into its more spiritual character, and its excesses were chiefly individual and local. But the fanaticism of this class of Anabaptists remained the reproach of the reformation, and the terror of civil society.—There was another class of Anabaptists, widely different from those who have been described. In some instances, undoubtedly, when the former class fell back upon their purely spiritual views, the two parties coalesced. Brandt refers to an instance in which the moderate were brought into difficulty by being found in such association with the fanatical. The distinction, however, is real, and may be traced. It is a mistake to suppose that the rejection of infant baptism during the reformation, was found among the unlearned only. Melancthon, Zwingli, and Ecolampadius, were all troubled by the questions which arose respecting the adjustment of this rite to the personal faith required by Protestantism. Some of those who became leaders of the Anabaptists were the associates and equals of these reformers. Mantz, Grebre, and Hubmeyer, were men of learning,—the last of great genius and eloquence. Mantz had been the friend and fellow-student of Zwingli, and was an early mar-

tyr in the cause of the Anabaptists, Zwingli himself pronouncing his sentence in the words, "*Qui iterum mergit, mergatur.*" The persecution of such men and their followers in Switzerland, shocked the moderate of all parties. In expressing his views of this persecution, Erasmus pays a tribute to the character of the sufferers in these words: "A people against whom there is very little to be said, and concerning whom we are assured there are many who have been reformed from the worst to the best lives; and though, perhaps, they may foolishly err in certain opinions, yet have they never stormed towns nor churches, nor entered into any combinations against the authority of the magistrate, nor driven anybody from his government or estate." These people, so persecuted, demanded a church composed of spiritual persons, introduced into it by a voluntary baptism. They demanded likewise the separation of the church from the state, and the non-interference of the magistrate in matters of religion. Anabaptists of the same class were found in the Netherlands in large numbers. The record of their sufferings, their martyrs multiplied by thousands, furnishes a melancholy and affecting chapter in human history. William of Orange, founder of the Dutch republic, was sustained in the gloomiest hours of his struggles by their sympathy and aid, and has left his testimony to their loyalty, industry, and virtue. That great prince, however importuned, steadfastly refused to persecute them. The same class were found in England during the reign of Edward VI., and Burnet declares that books, not flames, were used in reply to their arguments.—One of the doctrinal peculiarities of the Anabaptists, which seems to have been almost universal among them, related to the origin of the human nature of Christ. They denied that he took his flesh of Mary, explaining his incarnation by a higher miracle. Doubts have arisen as to whether, on the one hand, they believed in the reality of his human nature, and on the other as to whether they believed him to be a divine person. The records of the examination of some of them before the courts, ought to remove all questions of this kind. They believed fully in his complete humanity, and their answers show that their questionings in regard to the origin of his human nature did not necessarily imply any departure from the common views of his divinity.—Simon Menno, born at the close of the 15th, or, as some say, at the commencement of the 16th century, educated for the priesthood of the Roman Catholic church, and converted in the prime of manhood to the faith of the Anabaptists, became their chief leader, and the instrument of their organization into a recognized body of Protestant Christians. Menno disavowed for himself and his brethren any connection whatever with the fanatics of Münster, though it is not impossible that some of the more rational of the furious party were won by him to greater sobriety of views, and to peace-

ful lives. A man of sincere piety, prudent, indefatigable in his labors, and gentle in manner, he travelled for 25 years in various countries of Europe, propagating his doctrines, gathering and confirming churches, adjusting differences among his brethren, and conciliating the favor of civil rulers. Always exposed to great peril, he lived nevertheless to accomplish a great work, and died peacefully in old age. Menonists and Anabaptists have from his time been interchangeable terms, and the communities so called have descended to the present age. Even while he lived, however, they became separated into two great divisions, the "Fine" and the "Gross," the former claiming a more strict adherence to the austerity of the older Anabaptists, and the latter relaxing into closer resemblance to Protestants generally. "All the opinions," says Mosheim, "which are common to the whole body, are founded on this one principle as their basis, viz., that the kingdom which Christ has established on the earth, or the church, is a visible society or company in which is no place for any but pious and holy persons, and which, therefore, has none of those institutions and provisions which human sagacity has devised for the ungodly." They neither permitted coercion in religion, nor exercised the functions of magistrates. They were obedient subjects and citizens, and many of them attained wealth by their industry and enterprise. In the progress of time they attached a higher value to human learning, and both established schools among themselves, and sent their sons to the universities. They remain to the present time a somewhat numerous body, in the several countries in which they had their origin.

ANABARA, a river of Siberia in the government of Tobolsk, which rises in lat. 66° 30' N. long. 107° E., and after a course of about 400 miles, falls into the Arctic ocean in lat. 72° 40' N. long. 112° 30' E. The river Olia, which runs parallel with it for nearly 300 miles, joins it at its mouth.

ANABAS SCANDENS (Cuv.), an acanthopterous fish, of the family of *labyrinthibranchida*, and the only species of the genus. This family, which has been known from remote antiquity, is remarkable for the peculiar structure of some of the pharyngeal bones and for the serrations of the gill-covers. The palate is toothless; the jaw teeth are villiform, the outer ones the strongest; the lower is toothless in front, but far back among the 3 superior pharyngeals the teeth are crowded, conical, and large. The head is round and wide, and its scales, as well as those of the body, are large, hard, and strong; the dorsal and anal fins are of nearly equal height; the branchiostegal rays are 6. The inferior and 8 posterior upper pharyngeals are of the usual form, and provided with teeth; but the 2 other upper pharyngeals on each side are dilated into thin and convoluted laminae, capable of retaining a considerable amount of water; this labyrinth communi-

cates with the gills by a small opening which may be entirely closed. The water enters this cavity every time the fish opens its mouth, and may be retained for a considerable period. A fish dies out of water not from immediate want of oxygen, but because the gills become dry and improper for its transmission. The anabas can live many hours, and perhaps days, on the land, as the water contained in its pharyngeal receptacle trickles slowly over the gills and keeps them moist at the will of the animal, which leaves the rivers and pools, and crawls by means of its fins and tail considerable distances. Another peculiarity of this fish is the number of sharp spines which project from the edge of the operculum and suboperculum, the latter being uncommonly movable. The specific name is derived from its alleged habit of climbing trees, which it is said to do by fixing its opercular spines in the bark, flexing its tail, and fastening the spines of the anal fin; then detaching the head, it throws itself forward, to recommence the planting of the anal spines. It certainly progresses on land in this way, and doubtless may ascend low trees, though the last is denied by some writers. It inhabits the streams and pools of India and the Indian islands, living principally on aquatic insects; it is used as food, though small and full of bones; it grows from 6 to 10 inches long. It is brought alive to the Calcutta markets from a distance of over 150 miles; from their being found at a great distance from water, the natives believe that they fall from the heavens.

ANABASIS, a Greek word signifying originally ascension, then a campaign or march from a lower into a superior region; for example, from the shores of a sea into the interior of a country. In this signification the word has a twofold application, namely, to the anabasis or campaign of Cyrus the Younger against his brother Artaxerxes, of which the history was written by Xenophon, containing the relation of the celebrated retreat of the 10,000 Greeks; and to the anabasis or campaigns of Alexander the Great, described by Arrian, the historian.

ANACHARSIS, a Scythian philosopher who made his appearance at Athens in the 6th century B. C. He became very intimate with Solon, and was so esteemed for his virtue, learning, and sagacity, that some have ranked him among the 7 wise men. He was made a citizen of Athens, and is said to have been even initiated into the Eleusinian mysteries. According to Herodotus he was killed by his brother after his return to his native country. Many of the sayings of Anacharsis have been preserved by Diogenes, Athenæus, and other ancient writers.

ANACHRONISM (Gr. *ana* and *χρονος*, a confounding of times), in matters of literature an error with respect to chronology whereby an event is placed earlier or later than its real occurrence. Shakspeare has designedly introduced a number of anachronisms in his *King Lear*; for instance, *King Lear* is supposed to

be an ancient British prince in the time of the Roman empire. Yet we have dukes of Kent and of Cornwall introduced. Now the first title of duke conferred in England was by Edward Plantagenet in the 14th century. Here, therefore, we see an anachronism of nearly a thousand years.

ANACLACHE, a peak of the Bolivian Andes, situated in lat. 18° 12' S. long. 69° 20' W. It is supposed to be more than 22,000 feet in height, and its summit is covered with perpetual snow.

ANACLETUS. I. A disciple of St. Peter, and afterward a pope. Some writers place him between Linus and Clemens, making him 8d from Peter; others place him after Clemens. He perished by martyrdom, A. D. 109. II. An antipope, whose original name was Pierre de Leon. But according to the practice introduced (956) by Octavianus (John XII.), he assumed the title Anacletus II. on his elevation to the papal chair (1180). He was educated at the university of Paris, and entered the convent of Cluny, and was afterward cardinal and legate of Pope Calixtus II., both in England and France. He was elected to the see of Rome by Rome, Milan, and Sicily, in opposition to Innocent II., but his title was called in question by the clergy, and he was excommunicated by the council of Pisa in 1184. He died 4 years after, having contested his office for 8 years.

ANACOLUTHON, in rhetoric and grammar, a want of coherency or of sequence in a sentence. It occurs generally in the midst of a long sentence when the writer or speaker fears that the reader or auditor will forget the beginning, and breaks the sequence of his speech to catch the beginning of it again. It is used much more frequently in conversation than in written composition. It arises oftener from carelessness and want of art than design.

ANACONDA (*eunectes murinus*, Wagler), a large serpent of the boa family, found in most parts of intertropical America. The genus *boa*, which contains the large American serpents, has been made to include many species which do not belong to it, among others the *anaconda*; and we find accordingly this species named *boa scytale*, *boa murina*, *boa gigas*, and *boa aquatica* by various authors. The genus *eunectes* may be distinguished from all others of the boa family by the nostrils opening at the upper part of the end of the muzzle, and looking directly upward—this peculiarity, added to their very small size, the little space between them, and their crescentic form, which allows them to be completely shut, indicates the aquatic habits which we know characterize the *anaconda*. Other generic characters are the three plates which surround the nostrils, the plates which cover the anterior half of the top of the head, and the scales which cover it posteriorly, the flat and smooth scales of the body, and the undivided plates on the under surface of the tail. The head is comparatively small, conical, very flat below, and

truncated in front; the body is considerably larger in the middle than at either extremity; the tail, less prehensile than in the boas, forms about one-sixth of the total length. The eyes, which are small, are so placed that the animal can see at the same time objects above and before it, a provision common to all water serpents—the mouth is perfectly straight, and armed with strong teeth gradually diminishing in size in the four series; the number is 16 on each side in each jaw, 5 on the palate, and 10 on the pterygoid bones. The scales of the body are lozenge-shaped, and nearly of the same size, except those of the sides, which are 2 or 3 times larger than the rest; on the trunk there are about 60 longitudinal and 375 transverse rows; on the tail there are over 80 transverse and about 36 longitudinal rows—the plates or scutellæ of the abdominal region are very narrow, and about 250 in number, and of the tail from 60 to 73. The colors are simpler than in the boas, being blackish green above in the adults, and olive brown in the young—on the temples, between 2 lines of pure black, is a wide yellow band extending obliquely from the eye to behind the angle of the mouth—the back and tail present large oval discs of deep black, disposed in 2 series alternating with each other, and occasionally coalescing; along each side is a single or double row of black rings contrasting finely with the yellow ground color; the color beneath is ochre yellow with black quadrangular spots, isolated or confluent. The anaconda is the largest serpent of America, and is only equalled in size by some of the pythons of the old world; they are occasionally seen in museums 20 feet long, and they probably attain a considerably larger size, though the accounts of travellers are generally much exaggerated in this respect. The Guianas and Brazil are the favorite and perhaps the exclusive resorts of the anaconda. It lives mostly in the water, and is fond of shallow places, where it remains with all but the head submerged watching for its prey; it swims rapidly, in an eel-like manner, and can pass a long time beneath the surface; it is occasionally seen floating lazily with the current; it is also in the habit of stretching itself on the sand or on the rocks, on a river's bank, or along the trunk of a fallen tree, where it lies in wait for animals which come to drink; its ordinary food consists of agoutis, small rodents, iguanas, fish, and occasionally a monkey, sloth, and ant-eater; it crushes its prey in its strong folds, and seizing it with its teeth, swallows it very slowly head first. The time of impregnation is the winter months, at which time the natives attack it with guns, arrows, and even clubs; it is sluggish in its motions on land, and timid, and not at all feared; it is very tenacious of life. The natives use the skin for shoes and bags, the fat for the purposes of oil, and the flesh for food. It is ovo-viviparous. There is only one species of the genus described.

ANACREON, one of the great lyric poets of Greece, was born at Teos in Asia Minor. When that city was taken by the Persians, he emigrated to Abdera in Thrace, whence he afterward went to Samos, and spent several years at the court of Polycrates. On the death of Polycrates, he was invited to Athens by the tyrant Hipparchus, who sent a vessel for him. Here he formed an intimacy with Simonides and the other poets then revolving round the Pisistratidæ. He ultimately returned to Teos, his native city, where he died in the 86th year of his age, 476 B. C. He is said to have been choked by a grape stone. The Athenians and Teians vied with each other in doing honor to the departed poet. The former placed his statue in their acropolis; the latter stamped his image on their coins. We possess only a few genuine fragments of the poems of Anacreon, but these enable us to form a not very imperfect idea of the whole. His favorite themes were love and wine; his distinguishing characteristics licentiousness, gracefulness, and fervor. The best edition of the extant poems of Anacreon is that of Bergk, Leipzig, 1884.

ANADYOMENE (Gr. *αναδυομενη*, or emergent), is a surname given to a picture of Aphrodite rising from the ocean. Apelles was the first who painted her in this posture as she rose from the sea, and was drying her hair with her hands. This picture was bought by the inhabitants of the island of Cos, and set in their temple of Æsculapius. The emperor Augustus bought it of them for the remission of 100 talents tribute, took it to Rome, and placed it in the temple of the Venus Genitrix. In Nero's time, it was well-nigh washed out, and was repaired by one Dorotheus. According to some, Pancaste, the mistress of Alexander, was the model of this picture; according to others, the celebrated courtesan Phryne.

ANADYR, ANADIR, ANADEER, or ANADIR-SKAI. I. An extensive gulf or sea of Asia, at the N. E. extremity of Siberia, bordering the government of Irkutsk, and lying between Cape St. Thaddee and Cape Tchukotkoi, of late years much resorted to for whales. II. A river of Siberia, having its source in Lake Yoanko in the Stanovoi mountains, about lat. 67° 40' N. long. 167° 10' E., or as some geographers say in Lake Ivakno in the same range, lat. 66° 30' N. long. 173° E. It traverses the central portions of the Tchouktochee country in N. E. Siberia, flows first W., then E., and after a course of about 500 miles, falls into the sea of Anadyr above described. The country through which it passes is rocky and barren, and covered with snow about 9 months in the year.—Anadyrak or Anadirakal, the only station on it, is a mere hamlet, in lat. 65° 10' N. long. 167° 10' E.

ANÆSTHETICS (Gr. *αἰσθησις*, a privative, and *αἰσθησις*, to feel), substances which can produce a general or partial suspension of nervous power, by most considered as restricted to the sense of touch. In the common acceptation of the

term should be included all drugs which have the faculty of so acting upon the brain, that this effect can be caused; for instance, all the forms of narcotics and diffusible stimulants. But by general consent, during the past few years, this title has been confined to the most volatile forms of chemical agents which can produce the effect when inhaled, or applied externally, and the effects of which are transitory; the terms narcotization and coma being applied, where a long-continued effect is caused by other agents. The action of all anæsthetic agents is through the medium of the blood, into which they are taken either from the lungs, the stomach, or by the skin, and carried by the circulation to the brain, where they produce a very profound but transient state of intoxication. Anæsthesia is said to be either general or local; general, when all power over the body or mind is lost; local, when only a particular part of the body is affected, the brain and rest of the system remaining as ordinarily. Loss of sensation, in restricted portions of the body, has been attempted in various ways, by long pressure upon the nervous trunks leading to the part, first put in operation by Ambroise Paré, afterward adopted by Dr. Moore, about 1784; the application of carbonic acid gas, recommended by Dr. Hickman in 1828, a procedure which has again been lately revived by Dr. Simpson; the application of the various ethers, especially chloroform; and by a true freezing of the part, as recommended by Dr. James Arnott, of London, who employs for the purpose a mixture of pounded ice and common salt enclosed in a muslin bag. But thus far, the results of all have been but meagre, as it has been found almost impossible to reduce the sensation of the part to a low enough degree, to prevent some amount of pain without danger of destroying its vitality. Various anæsthetic agents have been employed at different times—the several kinds of ethers, nitric, acetic, sulphuric, &c., protoxide of nitrogen ("laughing gas"), aldehyde, olefiant gas, naphtha, carburetted hydrogen, Dutch liquid, benzoin, chloroform, amylene, a substance introduced during the past year by Dr. Snow of London; but none of them have proved so successful, or are now so generally used, as sulphuric ether and chloroform. This latter substance was discovered nearly at the same time, in the year 1831, by Mr. Samuel Guthrie of Sackett's Harbor, New York, M. Soubeiran in France, and Prof. Liebig in Germany, but its chemical composition was not accurately known, until ascertained by Dumas and Peligot, in France, in the years 1834-'35. Correctly speaking, it consists of 8 atoms of chlorine to 1 atom of formyle, hence the origin of its name and synonyms, chloroformyle, formylchloride. Its true chemical definition, however, is a "terchloride of formyle, which is the hypothetical radical of formic acid." Its use for the same purpose as sulphuric ether was first proposed by Dr. J. Y. Simpson, of Edinburgh, in 1847. The advantages claimed for it over ether, are the smallness of the dose required, a more

perfect action, less depression when the heart or lungs are diseased, a more rapid effect, less disgust to the patient during inhalation, absence of persistent odor, and lastly, that it is cheaper. But as unfortunately it has happened that several deaths have occurred from its use, a list of nearly 100 having been collected, it cannot be looked upon as so safe an agent as ether, from the use of which, no matter in how large quantities, or how carelessly, not one death has yet been reported. The benumbing of the nerves of sensation by the administration of narcotic drugs, has been practised for many years, and as record shows was known to the ancients, but with the exception of certain traditions as regards the use in the east of the mandrake (*atropa mandragora*), and the hashish (*cannabis sativa*), in the form of vapor for this purpose, we have no proofs that anæsthetic inhalation was ever employed. Richard Pearson recommended the inhalation of sulphuric ether for asthma, &c., in 1795, and in 1816 Nysten described an instrument for its use. In Sir Humphrey Davy's "Researches concerning Nitrous Oxide," published the first year of this century, is this remark: "As nitrous oxide in its extensive operation seems capable of destroying physical pain, it will probably be used with advantage during surgical operations, in which no great effusion of blood takes place." It is stated by recent French journals, that a manuscript has been discovered, written by the celebrated engineer Papin, in 1681, in which he proposed to deaden sensibility in the human body when undergoing surgical operations in the same manner as is now done by chloroform. The want of encouragement made him give up all attempts to introduce it into general practice. Dr. J. C. Warren, of Boston, prescribed ethereal inhalation for the relief of pulmonary inflammation in 1805, and Mr. Wesley Smead, of Cincinnati, published an article on this treatment in 1822. The power of the ethers to produce insensibility was mentioned by Godman in 1822. Mitchell 1832, Prof. Samuel Jackson 1833, Wood and Bache 1838. But its application as an agent for the relief of pain during surgical operations was first publicly made at the Massachusetts general hospital in Boston, Oct. 16, 1846, when, at the request of Dr. W. T. G. Morton, of that city, it was administered for that purpose. He had, however, previously employed it for several dental operations. On Nov. 12, he secured a patent for the use of the article in the United States, and gave it the name of "Lætheon." On Jan. 2, of the next year, a new claimant for the discovery came before the public, in the person of Dr. Charles T. Jackson, of the same city, who declared that he had first suggested its employment to Dr. Morton. The respective claims of each led to much bitter discussion and doubt; the medical profession throughout the United States were divided in opinion; while the academy of sciences at Paris awarded the Monthyon prize of 2,500 francs to Dr. Jackson, "for his observations and experiments on the

anæsthetic effects of ether," and a prize of equal amount to Dr. Morton, for "introducing it into practice, after the indications of Dr. Jackson." The diversity of opinion found full vent at the time of the famous "Ether Controversy," when on August 28, 1852, a bill was introduced into the United States senate by Mr. Borland, to purchase of Dr. Morton his patent for the sum of \$100,000. The claims of each were ably argued, as well as those of a third contestant, the widow of Dr. Horace Wells, of Hartford, Ct., who claimed in the name of her husband. Neither of the petitioners, however, succeeded in obtaining a grant from congress for the discovery; nor, after a protracted and able discussion of the subject before the public on various occasions, has the respective share of the different claimants of the discovery been decided. The testimony on each side is contained in a volume of "Statements of Evidence" by Dr. Morton (Washington, 1858), Littell's "Living Age," vol. xvi., p. 529, vol. xvii., pp. 491, 565, and a variety of pamphlets by M. Gay, M.D., N. I. Bowditch, E. Warren, H. G. Bigelow, M.D., and others.—The objects gained by the administration of anæsthetics are various, according as we have to do with surgery, midwifery, or medicine. In surgery: 1. A protracted and careful examination, and consequently more accurate diagnosis, can be made in many cases of disease and injury, where the intense pain caused by the examination prevents the manipulation of the surgeon, as in fractures, dislocations, stone, &c., &c. 2. From the total relaxation which the muscles receive under a full dose, the reduction of many forms of dislocation, hernia, &c., is facilitated. 3. In military service, under its influence, men can be removed to a distance where the operation can be conveniently performed, instead of as heretofore being obliged to operate upon the field of battle or in places otherwise unfavorable. 4. The general use of many forms of remedial operation is extended, which otherwise are attended with such exquisite agony that they were rarely resorted to unless from most extreme necessity, as for instance the application of the actual cautery, moxas, &c. 5. Many operations can now be performed for the relief of long-continued disease, or after injury which before would have been hazardous, owing to the depressed or feeble state of the patient. 6. Many delicate operations can now be easily performed where perfect quiet is demanded of the patient, and which can hardly be afforded by any amount of exercise of the will, as in operations upon the eye, dissections of nerves, or the taking up of arteries. 7. Patients will now apply earlier than heretofore for relief in surgical diseases, the dread of the surgeon's knife often having induced them to postpone until the case became almost hopeless. 8. The mortality from operations has materially decreased, for it is well known that pain has a serious tendency to depress the nervous system and produce death from exhaustion.—In mid-

wifery: 1. In addition to preserving the mother from the pain always incident to parturition, we have the power of preserving her strength unimpaired when the labor is long continued or especially severe. 2. In all cases of instrumental labor or those requiring manual assistance, the aid can be afforded with greater ease to the accoucheur and more safety and less accompanying suffering to the mother. 3. Many cases of doubt in diagnosis can be more correctly solved. 4. From the relaxation of the muscular fibres, the exit of the child through the uterine neck or the vaginal passage when they are rigid, is facilitated. 5. Anæsthetics have the power of keeping in abeyance and reducing the violence of one of the worst complications of labor, puerperal convulsions. 6. The recovery of the patient after labor is assisted, and the chances of subsequent dangers lessened.—In medicine: 1. As a relief in severe or exhausting pain in disease as from toothache, passage of calculi, neuralgia, &c. 2. As a narcotic in mania, delirium tremens, excitement or wakefulness from any cause. 3. As an anti-spasmodic for chorea, hysteria, asthma, convulsions, &c. They have also been employed in many inflammatory diseases, fevers, &c., and in cholera. They are found very useful in the detection of feigned diseases, as affected paralysis, dumbness, contraction of limbs, &c. Within the last few years they have also been employed for nefarious purposes in cases of violence where a struggle or noise was feared, for murder, robbery, rape, &c. The first effect of all anæsthetics, or when they are taken in small quantities, is exhilarating and intoxicating as from any diffusible stimulant, evidenced by bursts of laughter, hysterical weeping, or loud unmeaning talking. When long continued or in large doses, there ensues a general feeling of warmth, extra power, and excitement generally first felt in the extremities, soon followed by a prickling, benumbed sensation, with confusion of ideas, noises in the ears, usually compared to the vibration of an engine from one side of the head to the other, and flashes of light before the eyes. This is soon followed by loss of sensation and voluntary motion, and total coma. The patient is generally observed to become a little flushed in the face, the veins of the forehead turgid, the eyes suffused and staring open, and the pupils dilated. The pulse is generally increased at the commencement of inhalation, but becomes decreased often lower than natural when the system is fully under the influence, which is the time chosen for the performance of all great surgical operations. The respiration, which is slightly quickened at first, becomes slower and deeper in the somnific state. The temperature of the body remains generally of the ordinary standard, but becomes slightly reduced when the influence is long continued. The effects of the anæsthetics generally disappear almost immediately after the administration is discontinued, and the patient comes to

perfect consciousness, or with merely a slight tendency to sleep and dizziness, with no recollection of any thing which has happened during the inhalation. Sometimes, however, the recovery is attended with nausea or vomiting, which most often happens when the drug is taken when the stomach is full; for this reason it should never be given until several hours after a meal has been eaten. No person has yet been found to withstand the influence, but the effect is seen much sooner and more quietly in some than in others. They should never be used in diseases of the heart or brain, or when there is excessive degeneration of the lungs. When from an over-dose or the inattention of the giver, the patient seems likely to sink, and the pulsations are suspended, the vapor should be removed from the mouth at once, the patient laid in the reclining position, free access of air allowed, cold water dashed upon the chest and face, and, if necessary, artificial respiration made, sinapisms placed on the feet, and galvanism used. Many instruments have been devised for inhalation, but, as often happens, the simplest means is usually the best. The most advisable plan for administering is to fold a coarse towel into the form of a small cone, in the bottom of which is to be placed a small sponge, upon which the liquid is to be poured. At the commencement, the sponge should be held at a small distance from the mouth, and the patient be directed to inhale by deep and long-continued inspirations, notwithstanding the cough. As he gets more and more under the influence, it should be approached to the face, but it is imperatively necessary that there should be a free admission of atmospheric air. Particular attention should be paid to the condition of the pulse. If chloroform is used, it should be remembered that its vapor is heavier than the air, and consequently sinks; care should also be taken to guard the skin from its irritating properties by smearing slightly with oil or glycerine. The ratio of power of ether and chloroform is considered as about 8 to 1 in favor of the latter, this producing its effect in from 80 to 60 seconds; the former on an average in from 8 to 4 minutes. The dose of chloroform is from 80 drops to 1 oz.; that of ether is of almost any quantity, as much as two quarts having been employed in some long-continued and severe operations.

ANAGNI, the ancient Anagnia, once the capital of the Hernicans, a town of about 6,000 inhabitants, in the papal states, 40 miles S. E. from Rome. Anagnia was one of the most ancient cities of Latium, and an early antagonist of Rome. Virgil speaks of it as "the wealthy Anagnia," and Cicero had a villa in its neighborhood. It continued a city of importance during the middle ages, and is still the see of a bishop. It is the residence of some of the noblest and most powerful families of Italy, twelve of whom are called the 12 stars of Anagni, and has given birth to several Roman pontiffs, among others to Innocent

III., Gregory IX., Alexander IV., and Boniface VIII.

ANAGNOSTA, JOHN, a Byzantine historian of the 15th century. His work, *De Rebus Constantinopolitanorum Macedonius*, contains a description of the siege of Thessalonica by Amurath in 1480, at which he was present.

ANAGOGE, in ecclesiastical writers, means the elevation of the mind toward things celestial. It is applied more particularly to the verification of the types of the Old Testament by the antitypes of the New; thus called because the veil which before concealed the esoteric meaning of the passages, is in the New drawn up.

ANAGRAM (Gr. *ana*, backward, *γραφω*, letter). The original anagram was a word formed by spelling another word backward, as live, *evil*. But the term is now used with greater license, to express any transposition of the letters of a word, as Galen, *angel*, or of the words of a sentence, as the question of Pilate put in Latin, *Quid est veritas? Est vir qui adest*. At first the letters of the word or sentence transposed must be strictly retained in the anagram; but by degrees license crept in, and many letters were interchanged; as *e*, and *k*, *s* and *z*, *v*, *u*, and *w*. An example of such changes is the anagrammatic name assumed by Calvin in his Institutes, *Alcuius*, that being the anagram of Calvinus, interchanging *v* for *u*. Anagrams are sometimes made by the reversion of the words of a sentence, and not of the letters of the words, as in the verse found in the margin of an old Bible opposite the passage (Gen. iv. 8, 4) describing the sacrifices of Cain and Abel, which somebody puts in the mouth of Abel: *Sacrum pingus dabo, nec macrum sacrificabo*, to which Cain is represented as responding, *Sacrificabo macrum, nec dabo pingus sacrum*. Anagrams were but little used by the ancients. They were most in vogue in the 16th and 17th centuries, and seem to have been specially delectable to the theologians of that day, who were as much delighted to hurl an anagram at their opponents, as an argument. Thus the Calvinistic opponents of Arminius made of his name the Latin anagram, *Vani orbis amicus*, while his friends, taking advantage of the Dutch mode of writing it, *Harminius*, hurled back the equally conclusive argument, *Habui curam Sionis*. Perhaps the best anagram ever made is that by Dr. Burney on Horatio Nelson, so happily transformed into the Latin sentence so truthful of the great admiral, *Honor est a Nilo*. Reading this, one is almost persuaded that it is not altogether a superstition that the hit contained in the anagram has a meaning provided by providence or fate. This is also amusingly illustrated in the case of the Frenchman André Pujon, who, using *j* as *i*, found in his name the anagram, *Pendu à Riom*. Riom, being the seat of justice for the province of Auvergne, the poor fellow, impelled by a sort of infatuation, actually committed a capital offence in

that province, and was hung at Riom, that the anagram might be fulfilled.

ANAH, or ANNA, a town of Asiatic Turkey, on the Euphrates, in the pashalic of Bagdad, and 160 miles W. N. W. from the city of Bagdad. It is pleasantly situated in a fertile valley, enclosed by rocks and date-trees. Anah is a resting-place for the caravans which traverse the great Mesopotamian desert, but is itself exposed to the furious desert winds. On an island in the river are the ruins of a castle which was built in place of that destroyed by the Emperor Julian; and on the opposite bank is the site of the ancient city of Anatti. The population of Anah is between 3,000 and 4,000.

ANAHUAC, an aboriginal name, signifying, in the Nahuatl, or ancient Mexican language, by or near the water; from *atl*, water, and *nahuac*, near. The name has come to be applied specifically to the valley, or rather the plateau of the city of Mexico; although, in the early writers, we find references to several Anahuacs; as, for instance, Anahuac-Ayotlan, and Anahuac-Xicalanco,—the latter applied to the district around the lake or lagoon of Xicalanco, in Tobasco. From the circumstance of their having established themselves originally around the lakes of Chalco and Tezcucotl, the traditional tribes of Mexico have been called Anahuatlacas, people living by the water. It is alleged that these tribes came from some northern region, supposed by some to have been from Asia, by way of Behring's strait, and that the ruins of ancient edifices, known as *casas grandes*, in New Mexico, and Ohihuhua, mark the path of their migration. It is, however, known to critical students, that their original seats, figuratively represented as 7 caves, were somewhere in the vicinity, probably on some of the islands, of Lake Michoacan; and that when they reached the region of Anahuac, they were simple barbarians, clothed in skins, and living by the chase. Around the lakes of Mexico, however, they found the feeble remnants of a people far advanced in civilization, agriculturists, and architects—the Tlhuatlacas, a name corrupted by uncritical writers into Toltecs. These Tlhuatlacas were unable to resist the irruption of the 7 warlike tribes, but gradually taught them agriculture and the arts, and thus laid the foundation of the Tezcucan and Mexican empires, in which civilization and barbarism, lofty religious precepts, and the most cruel rites, were incongruously mingled. The Anahuatlacas were precisely the people better known as Aztecs (see *Aztec*); and the name of Anahuac is now only understood as applying to the plateau of the city of Mexico.—This great table-land comprises three-fifths of the territory belonging to the Mexican republic. It lies between lat. 15° and 30° N. and long. 95° and 110° W. This plain has an elevation of 6,000 to 9,000 feet above the level of the sea. E. and W. it is bounded by the two great chains of mountains into which the Cordilleras of Central America is subdivided in its northward pro-

gress. Out of this plateau rise many lofty mountains, including the stupendous volcanoes of Jorullo and Popocatepetl (17,720 feet high); but it is generally level.

ANALECTA, fragments, things collected; a term originally applied to the crumbs scattered from the tables upon the floor, which were collected by servants, because the fine inlaying of the floor prevented their being swept away. The term is now generally applied to collections of fragments from the writings of any one person, or to collections from the writings of different persons on the same subject.

ANALOGY, a term in the use of which there is much injurious vagueness. Literally, it signifies a collecting together, or placing side by side (Gr. *ana*, together, *lego*, to collect). Aristotle, deriving it from *ana*, *logos*, defined it as the *ισότης του λογου*, the parity of reason. It is used to express: 1. A resemblance in one or more attributes, between certain things which are otherwise different; as when one flower is said to be analogous to another, from resemblance in color, outline, or habits. When used in this sense, analogy is distinguished in scientific language from affinity, that being used only where the resemblance is so great as to confer a scientific relation upon the resembling objects. 2. A similarity of two things, as having some common relation to a third, as a hat is said to be analogous to a turban, because both are worn on the head. 3. A similarity of two things, as having the same relations to two similar things; as when the bark or leaves of a tree are said to be analogous to the skin or lungs of an animal, from sustaining the same local or physiological relations to the two similar things, tree and animal. 4. In grammar, analogy is used to designate conformity to general laws of orthographical or syntactical structure, as when we say analogy requires that the terminal *e* of verbs should be omitted in the formation of the imperfect participle. Similarly, the analogies of universal grammar apply to certain structural laws of language as the vehicle of thought. 5. In mathematics, it is the similitude of certain proportions, as $A : B :: C : D$. 6. In sacred hermeneutics, the phrase "analogy of faith" expresses "the constant and perpetual harmony of Scripture in the fundamental points of faith and practice," as when some passage of Scripture appears to contradict the doctrine of the divine goodness, it must not be so interpreted, because it is in contradiction to the general tenor of Scripture. In a similar sense, the phrase "analogy of Scripture" expresses the verbal or real parallelism of two or more passages of holy writ. 7. But the last and most philosophical use of the term analogy is thus expressed: When two objects lying in one plane of being or action have the same relations to each other as two objects lying in another plane have, then either of the objects in the one plane is analogous to the object sustaining the corresponding relation in the other. To

recur, for illustration, to our mathematical formula above ($A : B :: C : D$). Let A and B represent objects of sense, and C and D objects of thought; then the formula represents this last use of the term analogy. Thus when Jesus says, "I am that bread of life," the claimed analogy which underlies the affirmation, is that he sustains a relation to the human soul on the spiritual plane, similar to that which bread sustains to the human body on the physical plane. It will be seen that this use of the word fundamentally differs from all the preceding; for in all those the objects compared lie in the same plane. The term analogy should be restricted to this latter meaning. The preceding six senses in which it is applied could be as well and better expressed by some other terms, as resemblance, relation, or affinity. Much would be gained in conciseness by such restriction. Thus defined, an analogy would always contain a comparison of two ratios or reasons, drawn from different planes, and thus would be truly a collecting together, according to the primitive force of the term. Reasoning from analogy is much practised in all departments of science. In physics, Sir Isaac Newton concluded that because all things near the surface of the earth tended to its centre, the moon, from similarity of situation, would have the same tendency. This assumes the analogy enumerated as 2d above. In medicine, it is reasoned from the observed effects of a drug on an animal, what its effects will be on the human system. This proceeds on the reversion of the 2d form above, and assumes that the animal and the man already resemble each other, and hence the effects of the drug upon them will be similar. In theology, it is concluded from the divine dealings in the physical realm, what they will be in the moral or spiritual. Too much stress has been put upon analogical reasoning. Strictly speaking, there is no such thing. To reach a conclusion in the process there must always be an assumption which is a *petitio principii*. From one plane of being to another we may not reason. Analogy is not an instrument for arriving at truth, for the assertion of an analogy presupposes the arrival. The definition of analogy by Quintilian cannot therefore be true, that it is a means of discovering the unknown by the known. It is of use only to convey the result attained. It is therefore a convenient form in which to dogmatize, but not to conclude. Analogy proceeds by abstraction; that is, certain attributes of certain objects are considered separately from all the other attributes of those objects. Analogy, as above defined (7), is the doctrine of correspondences, and must of course be extensively used in all attempts to communicate to the human mind purely spiritual truths. (See ALLEGORY.)

ANALYSIS (Gr. *ana*, intensive, *lysis*, to unloose), the act of separating or decomposing any object into its component elements. Analysis is more than division. A quart of water would be divided into two pints, but it would be

analyzed into its component elements of oxygen and hydrogen. Analysis recognizes and proceeds under the control of law. A man might tear a watch in pieces blindfold; but he only could be said to analyze it when he was conscious of a certain arrangement and method in its structure, and as he removed each wheel and spring perceived its relation to the whole, so that he could reconstruct it by the same law. This latter process would be synthesis. Hence analysis and synthesis are correlatives. Analysis has a place in metaphysical, chemical, and mathematical nomenclature, and in order to a full definition of it, must be considered under these three heads.—ANALYSIS, in metaphysics, is that act of thinking by which our complex thoughts or perceptions are themselves separated into their constituent elements. Analysis and abstraction are to be distinguished. While the same mental function and act is involved in both, abstraction represents or signifies this function in its application purely to the element or part taken away, while analysis looks to the decomposing result on the original compound from which the elements are one by one abstracted. An abstraction is complete when any one part is taken away, an analysis only when all the parts have been abstracted. Analysis precedes comparison and analogy, for these latter processes are grounded in partial resemblances, which can only be discovered in an examination of the parts which analysis furnishes. Analysis is therefore the antecedent of all classification, which is grounded also on resemblance, and is a synthetic process. Hence the relation of analysis to scientific knowledge is that it is the initial act of scientific discovery. Thus analytic procedure is the mode of attaining knowledge, while the synthetic is the mode of communicating it.—ANALYSIS, in chemistry, is the art of resolving compound substances into their constituent parts. Analysis is qualitative and quantitative. The former determines what substances are present; the latter their relative proportions. The former should always precede the latter; and on its results the plan of conducting the latter should be laid out. Analysis is ultimate or proximate. The former resolves compounds into their simple elements, the latter into compounds of known composition, from which, if necessary, the proportions of the simple elements may be calculated. Organic substances are most commonly subjects of ultimate analysis; inorganic of proximate analysis, the latter being simpler combinations of familiar acids and bases. The simplest form of analysis is that called mechanical. In this ingredients merely mixed together are separated by breaking up the feeble bond which holds them in one mass. A mechanical analysis of a mixture of granite and magnetic iron ore may be made by crushing the compound to powder, and by water or the magnet separating the stony from the metallic portion. By the use of water, one might even distinguish the quartz, felspar, and mica of the granite from each other. The re-

sult would be given in such a percentage of stony matter and such a percentage of pure ore. A proximate analysis would give the percentage of silica, alumina, protoxide and peroxide of iron, oxide of manganese, potassa, hydrofluoric acid, soda if present, and water, contained in the minerals of the granite, and in the ore. An ultimate analysis would resolve every one of these compounds into their simple elements, as silica into oxygen and silicium, water into hydrogen and oxygen, &c. Mixtures may be broken up and separated by various means, some of which are the same as those adopted in the higher forms of analysis, for instance, by dissolving a soluble from an insoluble substance. The object always aimed at in analysis is to bring the material operated upon into such a condition (as in a liquid solution) that one of its ingredients may be separated from the rest, commonly by the addition of a new substance, with which it has a strong affinity, and in combination with which it falls down as an insoluble precipitate; or the substance added may, by its stronger affinity for, seize upon and combine with an acid, which united before with an oxide made this soluble. The oxide thus set free falls as a precipitate, and may by filtering and drying be separated and weighed. Instances of both these operations are very common in analysis. Sulphuric acid added to any solution containing a salt of baryta dislodges the acid, which made the baryta soluble, and combines with this in the salt, sulphate of baryta, which being insoluble falls as a precipitate. Again, ammonia added to a solution containing a salt of iron, combines with the acid which holds the iron in solution, and the insoluble oxide falls as a precipitate. A compound is sometimes added to effect a double change of acids and bases, and thus separate one of the ingredients. When a substance is precipitated in a different condition from that in which it existed in the original material, as the baryta thrown down with sulphuric acid as a sulphate, the principle of definite proportions, in which substances combine, enables one at once to ascertain the proportion of baryta present by reference to the tables prepared for this purpose. This description and the examples cited give but a very incomplete idea of the great variety of methods adopted in treating the complicated combinations, which are the subjects of chemical analysis. Bodies of all sorts, solid, liquid, and gaseous, require each its peculiar mode of treatment according to the result, of the qualitative examination. The complexity of the mixtures would seem to involve the whole subject in inextricable confusion; but, as in all her other operations, so in combining the ingredients of these mixtures, nature has followed a systematic plan of wonderful simplicity and exactness. As the law of definite proportions is understood and regarded, the taking apart of natural compounds, and determining the proportions of their elements, should partake of the accuracy of mathematical

calculations. The chemical formula is the test of the correctness of the process. The requisites for attaining proficiency in this art are not merely manual dexterity in the use of apparatus, and ingenuity in contriving and adapting it to various purposes; but, more than all, a facility in the use of mathematical combinations, and in their application to the modes of combining of material elements.—ANALYSIS, in mathematics, had anciently the same meaning as in the above instances. Certain propositions in mathematics were assumed to be true, and by a course of reasoning on that assumption, the inquirer was led to some simple result, whose truth or falsity was self-evident; and from this the truth or falsity of the original assumption was inferred. In modern mathematics the word analysis has an entirely different signification, and is nearly synonymous with the word algebraical. There is, however, this difference, that in algebra quantities are considered as having fixed, though unknown values; while in analysis the unknown quantities are considered as passing gradually through changes of value. This use of the word analysis probably came from the conception of this change taking place by short steps, and the whole being thus divided into parts. See ANALYTICAL GEOMETRY and CALCULUS.

ANALYTICAL GEOMETRY is geometry treated by means of modern analysis. This branch of geometry was called into existence by Des Cartes. In its further development it has led to the differential and integral calculus of Leibnitz and Newton. The term analytical geometry is, however, usually so limited as to exclude the consideration of the rate at which a geometrical magnitude changes, and only to deal with the changing quantities themselves. Thus, although far more powerful than ancient geometry, it constitutes but a small part of the varied resources of the modern geometer. The elementary works of Peirce or Davies will give the student an introduction to this science, and for higher studies works on the differential calculus must be procured.

ANAM, or COCHIN CHINA, a country of south-eastern Asia, extending from the promontory of Cambodia, in lat. $8^{\circ} 25' N.$ to about lat. 28° —being a length of over 875 geographical miles. The sea bounds its entire eastern coast. Its western limits are not certainly known. The empire has an entire area of about 78,695 square miles. It is naturally divided into 4 parts: Tonquin, Cochin China Proper, Tsiampa, and Cambodia. —TONQUIN is the most northerly, and adjacent to the Chinese frontier. It is very little known, having maintained, more thoroughly than even China, an exclusive policy. On the north, it is mountainous. Its southern frontier is divided by a wall from the adjoining province of Cochin China. The rivers of Tonquin flow mostly in a south-easterly direction. The Sang-Koi, the largest, waters and fertilizes a large tract of country, and its lands produce gold in considerable quantities. Several other streams flow into the sea, south of the Sang-Koi. The inter-

vening country is swampy, and is chiefly tenanted by fishermen, who catch fish and alligators for the interior markets. The product of the fisheries is immense. The interior is supplied, and yet large quantities remain which are exported to China. This portion of Anam is much infested by typhoons, which cause great devastation, sweep down whole towns and fields, and often destroy a thousand fishermen in a night. The people, who are poor and coarse, live a merry, careless life, and meet death without fear.—COCHIN CHINA PROPER, or DANTRONG, is a small strip of land from 10 to 20 miles broad, and extending from the southern line of Tonquin to nearly the parallel of 12°, where it borders on Tsiampa. Eight or ten miles inland, this country is a complete desert. The most important river is that on which Hue, the capital, is situated. In the fertile spots, eagle-wood, grain, sugar, cinnamon, and other useful products, grow well. The mountains which border the west, have not yet been explored by white men.—TSIAMPA, or CHIAMPA, is a narrow strip of land, occupying the southern portion of the empire of Anam, inhabited by a peculiar race, more resembling the Malay than the Anamese. This tract is exceedingly sterile; but the coast abounds in good harbors. The chief product of Tsiampa, is the eagle-wood (*aloëzyllum agallochum*), which gives out a sweet incense, and is much used for burning before idols, all over India. Since the incorporation of Tsiampa with Anam, the aborigines, once bold navigators of the Indian ocean, have retired to the mountains, a forlorn and persecuted race; and a few thousand Cochin Chinese have taken possession of the coast.—The 4th province is CAMBODIA, or KAMEN. The former is the name given it in the sacred books; the last is the name given to themselves by the natives. That part of this province which is under the sovereignty of Anam, presents a continual flat, with rich alluvial soil, watered by many navigable rivers. Among these is the Mekong, one of the largest rivers of southern Asia. This river, rising in China, drains the whole of Cambodia, and falls into the sea, by three mouths, in lat. 9° 34' N. In Laos, many thriving villages are built upon its banks, and in Cambodia, the chief part of the population live along its shores. There are several other important rivers. In agriculture, the people of Cambodia are much behindhand, yet as the soil is exceedingly fertile, this province is considered the granary of all Anam. It produces vast quantities of rice, anise seed, betel nuts, and cardamoms. The areca palm, teak, and other building and dyeing woods, grow in the forests. Stick-lac is one of the products of the country. The mulberry tree is also cultivated, and the natives understand the management of silkworms. The climate of this province is mild and agreeable, except during the rainy months, May and September, when it is very sultry. Typhoons are not so frequent as in Tonquin. Numerous small islands lie off the coast of Cam-

bodia. Here, the natives spear the *tripang* or sea-slug, with which they carry on a considerable trade.—Beside these 4 provinces, the empire of Anam embraces a tract of the interior known as the Moi country, as well as the country occupied by the Laos tribes. The Moi mountaineers are a rude people occupying the hill-region from 10° 40' to 16° N. lat. They live chiefly on wild fruits, and roots, some sleep in trees, others in mean huts, but never in large communities together. The Cambodians sell them as slaves. Their forests abound in eagle-wood. The whole of the interior of the peninsula is inhabited by the Laos tribes. They are a harmless race, and are subject to all the surrounding governments. The territory of those who own allegiance to Anam, lies to the north of Cambodia and the Mekong river. This country is but little known, but all accounts unite in describing it as in a very flourishing condition, inhabited by thrifty people, who live happily under their patriarchal chiefs. They cultivate the soil, and have some silk and gold manufactories.—The geology of Anam presents but small variety. The prevailing formations are primitive, and consist of granite or sienite, with occasional limestone, marble, quartz, and hornblende. The government of Anam is despotic. It is administered by mandarins, of whom there are 2 classes, civil and military. These form a council for the king, and one of the military mandarins governs each province. Everybody is liable to the bamboo. The government claims military service at the hands of every male inhabitant between 18 and 60. The army amounts to 60,000 men.—The Anamese are a cheerful race of people, of small stature, with great agility of frame, not very dark, and forming in their features the link between the Malay and Chinese. The dress of both sexes is alike, consisting of trowsers, and a coat reaching to the ankles. The men do not shave or cut the hair, but tie it in a knot. Their chief food is fish and rice. They are gross and indiscriminate feeders, but are able to endure much on a very small supply of food. Drunkenness is not considered a vice. Their dwellings resemble the Chinese, but are inferior in point of comfort. The females predominate in number, but do not live secluded. On the contrary, they are found actively engaged in all branches of labor. The wife is a slave to her husband. The doctrines of Buddha are professed by a very few; but the mass do not care for worship, and are sunk in the most abject superstitions. The veneration for the departed dead is very general, and the temples containing their tablets are the most sacred spots of worship. Agriculture is more extensively pursued than any other branch of industry. Rice is the staple grain. Sugar-cane, cotton, indigo, and tobacco, are also very generally grown. Manufactures are comparatively few. Yet the Anamese excel in ship-building. A tolerably extensive trade is carried on with China. This is chiefly in the hands of Chinese, who abound throughout

the country, and are the chief merchants. The exports of Anam—chiefly to China—consist of rice, sugar, in considerable quantities, together with raw silk, cinnamon, cardamoms, betelnuts, dye-woods, stick-lac, and gamboge, ivory, elephants' hides and bones, rhinoceros bones, &c. The king trades on his own account, and is probably the wealthiest merchant in his realm. The Chinese import into Anam the coarser kinds of teas, coarse china-ware, and various cotton and paper stuffs of Chinese manufacture. The internal trade of Anam is carried on by means of rivers, canals, and roads. Hué is the capital of the empire, situated in Cochinchina, on a river of the same name.—The population of the empire of Anam has been variously reckoned at from 12,000,000 to 15,000,000, and Crawford says 16,000,000.

ANAMBOE, a seaport town on the Gold Coast of Africa, 10 miles E. from Cape Coast Castle. It is the seat of considerable trade, and formerly had a large traffic in slaves. The British fort here is the strongest on the coast. The country is fertile, but little cultivated, the natives depending upon the interior for their vegetables, for which they exchange fish, which are plentiful on the coast. The exports are gold-dust, ivory, palm-oil, and peanuts, and the imports are silks, tobacco, wines, guns, and cutlery. Its population is about 4,000.

ANAMIRAPUOU, a river of Brazil, in the province of Para, South America. It is about 200 miles in length, and empties into the river Amazon, near the sea, in lat. 0° 15' S. long. 50° 55' W.

ANAMORPHOSIS, a term of perspective drawing. It is used to designate a certain kind of pictures, so drawn that when viewed from one point they appear distorted, while from another they appear proportional; or, they are sometimes so constructed that seen with the naked eye they are deformed, but when viewed by means of a convex or concave mirror, the deformities are corrected. Of this latter kind are the pictures constructed for the amusement of children.—There is also a kind of picture called anamorphosis, which when seen from one point of view appears to be for instance a landscape, but, when seen from another, is a portrait, or an architectural structure.—The term is also applied in botany to designate any unusual organic development in a plant, as, for instance, an undue formation of cellular tissue; or the stamens, by excess of cultivation, assuming the appearance of petals.

ANANIAS. Scripture history mentions three persons of this name. I. The Ananias who, after having professed Christianity and united with the disciples, pretending to comply with either the requirement or the custom to sell their property for the common cause, conspired with his wife Sapphira to give in a part of the price for which he had sold his land, and reserve the rest, representing that he gave all. Peter is related to have discovered the impious fraud at once,

and the Holy Ghost to have avenged it by striking both the deceivers dead. II. A devout man who dwelt at Damascus, and who is recorded to have been warned in a vision to go and find Paul, and restore him to sight, after he had been struck blind at his conversion. The modern Greek church has a tradition that he was one of the 70 sent out by Jesus, and endowed with miraculous powers. III. A high priest (A. D. 47) before whom Paul was brought for trial at Jerusalem, who commanded Paul to be smitten on the mouth (Acts xxii.). Paul being sent from this tribunal to Felix, Ananias among others went up to accuse him of being "a pestilent fellow and a mover of seditions," &c. Beside these three, Josephus mentions a fourth. IV. A Sadducee, who was a violent defender of the Jewish rebellion against the Romans, and who seems to have been held in honor by Eleazer, the leader of the rebellion.

ANAPA, a seacoast town of Russian Circassia, on the Black sea. It is an inferior port for small vessels, but the outer roads are safe only in fine seasons.

ANAPÆST, in Greek and Latin verse, a foot consisting of two short syllables and one long; such are the words *Πιπῆμῃ, τέτάρῃς*. It is the reverse of the dactyl.

ANAPHORA (Gr. *αναφορά*, repetition), a figure in rhetoric, in which several expressions or phrases beginning with the same word are brought into juxtaposition. This form of speech is used for vividness of impression. The following is a good example, as containing a twofold anaphora, sustained by an alternation of similarly constructed sentences. It also illustrates another point essential to an anaphora, viz., that if long sustained, should be relieved by an unexpected termination, as shown in the italicized sentence: "Are they Hebrews? So am I. Are they Israelites? So am I. Are they the seed of Abraham? So am I. Are they ministers of Christ? *I am more.*"

ANASTASI BRATANOWSKI, the one being his monastic, the other his worldly or family name, one of the most eminent preachers in the Greek-Russian church. He was born in 1761, in a village near Kiev, and died at Astrakan, 1816. His parents were free peasants or Cossacks of Little Russia, and he was educated in the seminary of Pereaslaw, and became a teacher of poetry and rhetoric. In 1790 he took holy orders, became an archimandrite of various monasteries of the first class, and finally, in 1796, in that of Nowospask (New Salvation) in Moscow. He earned celebrity by the animation with which he delivered his sermons, and the brilliancy and finish of their style. He successively rose to the higher degrees of the hierarchy, and as an archbishop was a member of the supreme synod which administers the affairs of the church throughout the empire. He was member of the academy of St. Petersburg. His sermons are still considered as models of pulpit eloquence.

ANASTASIA, the name of several women considered by the Roman Catholic church as saints and martyrs. I. Anastasia the elder was a martyr of the time of Nero. II. Anastasia the younger, of an eminent Roman family, was brought up in the Christian faith by her mother Flavia, prosecuted for it by her heathen husband Publius, and finally burnt alive in Aquileia, in 808, during the terrible persecution of the Christians under Diocletian. Some letters written by her from prison to Chrysostom, her confessor, are still preserved. III. Anastasia, the daughter of an eminent Greek family of Constantinople, attracted by her beauty the attention of the Emperor Justinian. She resisted his dishonorable proposals, and, to avoid further attempts, retired to Alexandria. Until her death, in 567, she lived as a friar in a monastery, her sex remaining unknown. Her festival is celebrated on March 10.

ANASTASIUS, the name of several popes in the earliest times of the papacy. I. Occupied the Roman see 898-401. He was contemporary with Jerome, and is remarkable for having condemned various axioms and writings of Origen. II. Was pope from 496 to 498. III. From 911 to 918. IV. From 1153 to 1154.

ANASTASIUS, abbot and librarian of the Vatican at Rome, was sent in 869 to Constantinople to ask the hand of a Byzantine princess for the Emperor Louis II. He took part in a synod there, and thence got the name of Constantino-politan, having translated into Latin the canons adopted by the synod. He died about 886. He left various literary works, among others an ecclesiastical history compiled from Nicephorus, Sinicellus, and Theophanes, and a collection of the biographies of the Roman popes under the title of the Pontifical Book (*Liber Pontificalis*).

ANASTATIO PRINTING (Gr. *αναστασις*, or first raising up of copies from a printed sheet of paper, or an engraving). This process consists in moistening the sheet with dilute nitric acid, which wets and saturates the parts not inked. It is then pressed smoothly upon a sheet of zinc. The acid *etches* the metal, but the printed portion remains set off. The plate is then washed with a solution of gum in weak phosphoric acid, which wets only the etched portions. The plate is next inked with a roller, by which the unfigured parts are not affected, the ink remaining only on the printed portions. Thus prepared the plate may be used for taking off impressions. The art, however, does not appear to have been successful.

ANASTOMOSIS (Gr. *ανα*, through, *στομα*, mouth), the communication of blood-vessels by the opening of one into the other. The blood-vessels are the tubes by which all the different parts of the body are supplied with nourishment. They are mostly ramified like the branches of a tree, but with this great difference, that when a branch is severed from a tree, the supply of sap is cut off, and all the leaves and twigs of the severed branch wither and die;

whereas, in the case of a blood-vessel being plugged or separated from the trunk to which it is attached, the dependent ramifications are not deprived of blood; they are supplied by numerous anastomotic vessels, which form a sort of web amongst the branches, and are in connection with the main tubes of supply, by many secondary channels in all directions. Anastomosis is of two kinds, that between large trunks and that between small branches. The anastomosing branches are so numerous that if the main trunk of the aorta be tied in the abdomen, cutting off the direct supply of blood to the main vessels of the lower extremities, these will still receive indirectly a sufficient supply of blood to maintain their vitality, through the collateral or anastomosing branches, which are gradually enlarged, so as to supply the place of the large vessels which have been obliterated. The blood-vessels literally form a network of communicating or anastomosing tubes in every portion of the body, although the main trunks and their ramifications have somewhat the appearance of a tree, and the chief impulse of the blood is felt in the heart and larger vessels.

ANATA, or ANATHOTH, a town about 4 miles north of Jerusalem, and the reputed birth-place of Jeremiah. It was in the possession of the tribe of Benjamin, and a city of refuge. It was once a considerable place, but is, according to Robinson, now an insignificant village. A kind of building stone is carried from Anata in large quantities to Jerusalem, on the backs of donkeys and camels. Anata is in the top of the high range of hills running north of Jerusalem, and commands a prospect of the Dead sea. It was in Anathoth the prophet Jeremiah bought the field (witnessed by Baruch), as a symbol of the return from the captivity (Jer. xxxii.).

ANATHEMA (Gr. *αναθημα*, from *αναθημα*, to set apart), in the Greek classics any thing set apart as an offering to the gods, applied to the numerous votive gifts which were suspended upon the walls of temples or exposed upon public altars. By change of usage it afterward became the name of any thing devoted to the infernal gods, any thing execrated and execrable, causing the abhorrence of men. In this sense it was adopted by the Christian church as the synonyme of the Hebrew *cherem*, which signifies to destroy, to exterminate, and which was used by the Jews in pronouncing the ban of excommunication. The Old Testament gives many examples of the *cherem* or anathema, uttered in the strong language of the theocracy, and devoting the victim both to temporal and spiritual death. Moses pronounced the anathema against those Canaanitish cities which would not return to the Lord and cease to worship false gods, and Saul declared every man under the anathema who in pursuing the Philistines should eat any thing before the going down of the sun. In the New Testament it is used in the sense of "set aside" or "accursed." (1 Cor. xvi. 22; Gal. i.

8.) In the Roman Catholic church it is a sentence pronounced against heretics and schismatics, or against those who wilfully and obstinately persevere in a course of conduct which the church condemns. It implies exclusion from the communion and society of the faithful, who are taught to regard the object of this ecclesiastical penalty as one who by his crimes has cut himself off from the church and merited the flames of hell. The anathema, however, is not supposed to be a sentence of eternal reprobation; it is a temporal punishment, similar in its effects to excommunication. Most of the dogmatical decrees of the church close with anathemas against all who presume to deny them. Thus the council of Trent employs it against such as deny the existence of purgatory, the doctrine of the real presence, &c.

ANATOLIA (Gr. *ανατολή*, the east, or Levant), the large oblong peninsula which forms the western extremity of Asia, identical with Asia Minor. The name originated under the Byzantine emperors, and is retained by the modern Turks. Anatolia is bounded on the north by the Black sea, the sea of Marmora, and the Dardanelles, on the west by the Grecian Archipelago, on the south by the Mediterranean sea and Syria, and its ill-defined eastern boundary is near the courses of the rivers Euphrates and Tchoruk. It lies between lat. 36° and 42° N. and long. 26° and 41° E.; its greatest length is about 700 miles, and its greatest breadth is somewhat more than 400 miles; it has an area of 270,000 square miles, and its population is estimated at 5,000,000. The coasts of Anatolia, excepting a short distance on the Black sea near the Bosphorus, are bold and irregular, the western coast presenting as jagged an outline and as precipitous cliffs as are to be found in the world; and along the southern coast a line of steep and lofty rocks sometimes approach closely the shore, sometimes leave intermediate plains and valleys. A girde of mountains running parallel on 3 sides to the seacoast, and on the south barring the wide isthmus which connects Anatolia with the rest of Asia, completely encloses the interior of the country. On the south the chain of Taurus extends from the shore of the Archipelago to the Euphrates, and was supposed by the ancients to intersect the whole of Asia. The northern or anti-Taurus range stretches westward from the Tchoruk, joins the chain of Mount Olympus, and terminates in Mount Ida, near the gulf of Adramyti. Between these 2 main ranges numerous smaller ones interlock, and everywhere throughout the peninsula may be seen lofty mountain masses with clear snowy peaks, or black with forests of fir and oak. The highest summit is that of Arjish-Dagh, the ancient Argæus, once a volcano, 18,000 ft. above the sea, and situated 18 miles S. from Karsereyeh; beside which there are various others having an elevation of from 7,000 to 10,000 ft. These ranges enclose a vast and elevated plateau, into which they pour almost all

their waters. It is calculated that there is a space of 250 miles in length and 150 in breadth, covered with saline lakes and marshes, and often inundated during the rainy season, but of whose copious waters no part finds its way to the sea.—The large number of lakes impregnated with salt and destitute of outlets is also a remarkable geographical feature. The largest of these is the Tonz-Ghieu, the Tatta of Strabo, about 55 miles in length, with a breadth of from 10 to 15 miles, and situated 70 miles N. E. from Konieh. It is much reduced in summer by evaporations, and the incrustations upon its shores supply the neighboring inhabitants with salt. The principal lake district is between lat. 37° and 39° N. and long. 30° and 35° E. By far the largest river is the Halys, the modern Kizil Irmak, which rises about 40 miles N. E. from Siwan, has a tortuous and semicircular course, a part of which has been but imperfectly explored, and after a circuit of 600 miles, empties itself into the Black sea about 50 miles E. from Sinope. The Sakareeyah or Sangarius, the second river in magnitude, rises in the high table-land near Angora, flows W. and N., and after a course of 800 miles, enters the Black sea 80 miles E. from the Bosphorus. The ancient rivers of Oaius, Hermus, and Mæander, now bearing Turkish names, flow into the *Ægean*, and on the south the Eurymedon, Calycadnus, Sarus, and Pyramus, now called respectively the Kopru, Ghûk, Sihoon, and Jyhoon, find their way through the mountain passes into the Mediterranean. The Scamander and the Granicus, notwithstanding their high place in history and song, can scarcely be named as geographical features.—The climate of Anatolia has been the theme of praise in all ages, and it was remarked by Hippocrates that there was scarcely any variation of heat and cold known here, the 2 temperatures being so delightfully and equally blended together. This description, however, applies only to the western shores, the interior of the country offering great diversities of climate, and by reason of the various elevations of its surface, presenting winter and summer within one day's journey. Yet neither the intense cold in the passes of the Taurus nor the oppressive summer heat of Karamania, is insalubrious.—The most curious feature in the geology of the country is the volcanic region of Oataceanmene, in about 38° N. lat. and 29° E. long., abounding in cones of scorïa, streams of lava, and other traces of former igneous action. There are numerous sulphurous and thermal springs, some of which have a temperature as high as 160° , and bubble with force from the ground as if from under pressure. Little conical hills are in many places formed around the fountains by the gradual deposition of earthy matter held in solution in the water, but solidified by evaporation, and doubtless gave origin to the story told by Strabo of petrifying springs. There are spots where gases, in some instances inflammable, issue from the ground, and modern

travellers have confirmed the ancient account of a pestilential cave, whose exhalations were destructive to all who came within reach of their influence. Mining is not carried on to any considerable extent, though Strabo mentions that the mountain Sandaracourgium, in a branch of the chain of Olympus, had in his time been rendered hollow by the continual mining operations carried on in its interior. We hear no longer of the golden sands of Pactolus which enriched the Lydian kings, and the few mines of lead, iron, copper, and silver, are unimportant. Upon the decline of the Roman power, Anatolia passed out of European into Turkish hands, and little has been added to the knowledge of the ancients concerning its mineral wealth and character.—The coasts of this peninsula furnish nearly the same vegetable productions as southern Greece. Their fertile plains produce in abundance the finest varieties of fruit, quinces, peaches, figs, apricots, melons, rice, wheat, the most exquisite wines, the best tobacco in Turkey, and olive and mulberry trees for the manufacture of oil and silk. The mountains are covered with forests of oaks, beeches, planes, ashes, and almost all other building timber, and one of its forests, which has been an inexhaustible source of supply to the Turkish navy, is significantly named the "sea of trees." The flora of parts of Anatolia is very beautiful, and evergreens, the myrtle, bay, laurel, and holly, are abundant. The high table-lands of the interior with their profuse moisture demand a more industrious people than the Turks to render them productive. They are inhabited by wandering and pastoral tribes of Turkomans, who drive their flocks in summer into the most elevated tracts, and, as winter approaches, lead them into the lower and sheltered valleys. Their breeds of sheep, goats, and horses, are of celebrated excellence. The hair of the goat of Angora resembles silk in fineness and length, and shawls are reported to have been made from it equal in size and quality to the Cashmerian. The cats of Angora are as famous as the goats for their great size and the silken fineness of their hair. The horses are of the ancient Cappadocian breed, renowned of old for their fleetness and strength. The savage and lawless hordes, who tend flocks in this fine country, cause great alarm to caravans, which they plunder upon every occasion. The danger of travelling is increased by numerous ferocious animals, panthers, bears, wolves, and wild hogs, which abound among the mountains; but it is doubtful if the lion is now to be found in Anatolia as formerly. Swans still, as in Homer's time, frequent the banks of the Cayster, and red partridges cover the coasts of the Hellespont.—Neither registers nor censuses are known in Turkey, and therefore no very certain information is to be had concerning the number of the various classes of its inhabitants. The Ottoman Turks, the original branch of the Turkish family, constitute the main body of the population, and

still retain much of the rudeness, simplicity, and hospitality of their ancestors who roamed in the plains of central Asia. About one-twentieth part are Greeks, an active, subtle, but dishonest race, in whose hands is nearly all the trade of the empire; and the remainder comprise Armenians, Jews, Koords, a few wandering Arabs, and a smaller number of huckstering Zingari or gypsies.—For the possession of Anatolia the most powerful nations known in history struggled during over 8,000 years, from the obscure era of Semiramis, B. C. 2000, to the time of Osman, about 1800 of our era. Here was the Trojan kingdom of Priam and the long contest of Greece for its overthrow, in which the gods of Olympus descended and joined battle on different sides. Even the pencil of Homer seems to delineate the Asiatics as a more polished, though less energetic and warlike people, than their invaders. Afterward were the republics of refined and effeminate Ionia, the early nursery of Greece, and marking the first developments of the Greek race in civilization, poetry, and sculpture. Here Croesus, the wealthy king of the Lydians, ruled over a territory which reached from the *Ægean* to the Halys, but the prize of his riches drew upon him the arms of the elder Cyrus, caused the downfall of his dynasty, and served only to swell the pomp of Persian satraps. The phalanx of Macedon, trained by Philip and led by Alexander, rescued Anatolia from the Persian yoke, and it became the seat of two of most conspicuous monarchies, Pergamus and Pontus, which were formed from the wreck of the mighty empire of Alexander. Under the powerful and persistent Mithradates, king of Pontus, the last great stand was made against Roman domination; and no enemy of Rome ever maintained a harder struggle or fell with greater glory. Anatolia became a prosperous Roman province; its agriculture and commerce flourished, new cities were built and embellished; and the ruins discovered by modern travellers still attest its ancient civilization and splendor. The mountains and shores of western Anatolia, and the bordering islands, had been associated with the most interesting conceptions of the Greek mind. Every rock and island of the sea had its history, its protective gods, and deified heroes, and had been the theme of history and of song. Here Homer, Thales, and Pythagoras had been born, and the earliest artists and poets had wrought and sung. Hardly less favored was the same region under the Christian dispensation. It was the seat of "the seven churches which are in Asia," and the theatre of a large part of the events recorded in the "Acts of the Apostles." Several general councils were held in its cities, 2 of which, those of Nice and Chalcedon, exercised a decisive influence on the faith and worship of Christendom. Anatolia continued a part of the Byzantine empire, though frequently overrun by the armies of Persia or by hordes of Saracens or Mongols. Though its

picturesque hills and fruitful valleys had seemed destined to serve only as a battle-field for the nations, yet it had not been easy to extirpate civilization from them. The Turks only were needed to effect this. They had already appeared upon the scene in the 11th century, but it was not till after the mailed warriors of the crusades had swept across the peninsula, and till about the close of the 13th century, that the savage Osman, at the head of a family of tribes from the Caucasus, forced the passes of Mount Olympus, planted the Tartar tents in Bithynia, and prepared the way for the capture of Brusa by his son and successor, and for the farther progress of the Turkish arms against the eastern countries of Europe. The conquest of Brusa is the beginning of the modern Ottoman empire, and it marks also the complete disappearance of the old civilization from Anatolia. The country was soon again molested by a new Mongol invasion under the resistless Tamerlane, which having ebbed back, the supremacy of the Ottomans was confirmed by the capture of Constantinople and Trebizond. Since that time the provinces of Anatolia have been governed by grasping Turkish pashas, who act nearly as independent princes, and are constantly at feud with each other.—ANATOLIA is also the name of the largest of the pashalics of Turkey in Asia, forming the westerly portion of the peninsula called Anatolia or Asia Minor. Its extent depends much upon the caprice of the sultan, or the vigor and cupidity of the reigning pasha, but its indeterminate eastern boundary generally winds from about long. 85° E. on the Black sea to long. 81° E. on the Mediterranean. It is the richest and most populous province in Asiatic Turkey, with a mild climate, fertile soil, and an active commerce in wool of different kinds, in silk and cotton fabrics, honey, cheese, wine, fruits, and gall-nuts. Notwithstanding the oppressions of the governors, the people enjoy a degree of comfort and liberty rarely to be met with in the Ottoman empire.

ANATOLICO, a town of Greece, in the ancient province of *Ætolia*, on the gulf of Patras, 8 miles N. W. from Missolonghi. It is built on rocks and piles in the midst of lagoons, and is surrounded by water rarely exceeding 3 feet in depth. Its capture in 1826 by the Egyptian troops caused the downfall of Missolonghi. The fishermen in the lagoons use a peculiar canoe made from the hollow trunks of trees. The population of Anatolico is about 2,000.

ANATOMICAL PREPARATIONS. The skeleton and other portions of the dead body are preserved from decomposition by various artificial methods, for the use of medical schools, or science, and are thence termed anatomical preparations. The soft parts are usually separated from the skeleton by steaming or boiling; the bones are bleached, and the articulations held together by means of wires. This is called an artificial skeleton; and, when properly prepared, may be preserved for a long time.

To preserve the natural articulations of the bones, the soft parts must be removed carefully by dissection, and many delicate sections and mechanical adaptations are required to display the internal structure, forms, and relative proportions of the skeleton and its component parts. The whole body of an animal, or any soft portion of the body, such as the heart or the intestines, may be preserved for a considerable time in alcohol or in spirits of turpentine; and such preparations are very useful in the study of comparative anatomy. Another method of anatomical preparation, consists of injecting the vessels with some colored substance to distend them, and display their ramifications in the organs, that the shape and course and relative dimensions of the vessels may be seen with ease. By means of a large syringe inserted into the main trunks of the arteries, these vessels are filled with a soft colored mass, which penetrates into the smallest branches, distends them, and makes them visible. The infused substance usually consists of a mixture of soap, pitch, oil, and turpentine, to which is added a coloring substance: red for the arteries, blue for the veins, and white for the absorbents or lymphatics. For the latter vessels quicksilver is preferred, on account of its extreme divisibility.—Dried preparations of the soft parts, such as muscles, nerves, and membranes, are preserved by covering them with a protecting coat of transparent varnish. The quicker they are dried, the better for this mode of preparation and conservation. Spirits of wine, distilled with pepper or a very strong pimento, and mixed with muriatic acid, is used for preserving them. Washing with pyroligneous acid gives firmness and whiteness to these anatomical preparations. Those which are preserved in liquids are usually kept in bottles of transparent glass, hermetically sealed to prevent evaporation, and secure them against the destructive influence of air, moisture, heat, dust, and insects.—Preparations of this kind are very necessary to preserve important specimens of normal and abnormal development in the animal economy, but they are difficult to preserve long in a comparative state of perfection. Other means have therefore been devised as substitutes, for common use. Instead of anatomical preparations properly so called, anatomical imitations are now used for purposes of general instruction, and great perfection has of late years been attained in the manufacture of these works of art. Imitations of organic form and structure were formerly made in wood, as those of the Abbé Fontana in the museum at Florence; or in wax, as those made by Laumonier and others in France and Italy; card-board, as by Dr. Ameline of Osen; or in lithographic drawings, wood-cuts, colored prints, &c. Drawings, however perfect, are not sufficient for all purposes; and though the anatomical imitations of organs were sometimes made with rare perfection and beauty in wax, they were too expensive for

common use, and could neither be taken to pieces for detailed inspection, nor handled freely without risk of injury. In 1825, Dr. Auzoux, of Saint-Aubin d'Ecroville in France, conceived the idea of making imitations of all the organs of the human body; not only of their general external form and appearance, but also of their internal and minute details. For this purpose he composed a pasty mixture of a sort of papier-maché which may be moulded to any form while liquid, and hardened in the form thus given. Models of the organs were then made, in all their different layers and proportions, with the vessels and the nerves in each, as they are found in nature; the liquid substance was then poured upon the models and allowed to harden. A complete manikin of the human body and all the internal organs, was thus formed, which could be taken to pieces and put together again at will and with the greatest ease; each part being colored in imitation of nature, and labelled with a number or the real name, by which it could be recognized at any time, either in or out of its natural position in the manikin. In 1830, this art was brought to great perfection; and a comparatively faultless model of the human body, 5 feet 6 inches in height, could be manufactured and sold for \$600. This was still, however, too expensive for many persons, and complete manikins of a smaller size (8 feet 6 inches, in lieu of 5 feet 6 inches) are now manufactured, and sold for \$200 each. This invention has been very successful; and the demand for models has become so universal in the civilized world, that Dr. Auzoux has established a manufactory at Saint-Aubin, his native village, in the department of the Eure, where he instructs young people in the art, and employs from 60 to 80 persons constantly in making manikins and models of this kind. The study of anatomy has thus been greatly facilitated in all countries, and especially in hot climates, where dissection is attended with more inconvenience than in colder regions; not to mention the facility afforded to the public, who are neither able nor willing to submit to the labor and annoyance of dissection.—These models do not, however, enable the medical student to dispense with dissection altogether; as many things beside a knowledge of mere form, color, and relative position of the organs of the body, are necessary to the surgeon and physician in the study of anatomy and physiology. Each manikin contains 129 distinct pieces, forming different layers and organs or parts of organs, which may be separated and put together again with ease. In these pieces, 1,100 distinct objects are moulded, colored, and labelled. Beside these imitations of the human body, both in miniature, and of the natural size, Dr. Auzoux manufactures models of particular organs, as the eye and ear, brain, heart and lungs, &c., much larger than nature, that the minutest parts may be made visible, without the aid of a microscope. He

has also manufactured complete models of the horse and other animals, or portions of animal structure, with a like perfection of proportions and details in every part. Insects and fishes have been likewise imitated in their anatomical structure; and comparative anatomy will soon be probably as much indebted to this marvellous invention as human anatomy and its diffusion amongst all classes have already been. As the art of printing was the means of diffusing books amongst the people, so this art will become the means of diffusing a knowledge of the animal economy amongst all classes in civilized communities.

ANATOMY (Gr. *anatome*, dissection). The literal meaning of this word gives but a very limited idea of the sciences derived from the common operation of cutting open the dead bodies of animals, to inspect the organs, and thus, by careful examination, to obtain accurate views of their peculiar structure, and modes of action. During the primitive ages of the world, anatomy was little cultivated as a science, and thence, the art of surgery was undeveloped. In later ages, when science was appreciated, and medical men felt the want of a correct knowledge of the human organism and its physiological characteristics, religious scruples forbade the opening of the human body to inspect the viscera; and students of anatomy were limited to the dissection of animals, to gain a knowledge of internal organs and their functions, which might serve as a guide to understand similar organs and functions in the human subject. The first branch of this science, therefore, which was studied from nature, was animal anatomy, now called "comparative anatomy," from the fact of different types of the animal kingdom differing in their internal structure as much as in their external form. Aristotle was the first to give accurate descriptions of the internal organs of different species of animals, and for many centuries after him, little was done to advance the science by actual dissection and observation. Hippocrates, the father of medical science, was not the originator of anatomy and surgery. Of the many books ascribed to him, only 5 are believed to be genuine, and none of these expressly treat of anatomy. From his medical and surgical instructions, and physiological remarks, we learn that he had some accurate views of osteology, but his descriptions of the brain and the heart, and their respective functions, show that anatomy was little known to the illustrious physician of Cos. The first important development of human anatomy, of which we have any authentic record, took place at Alexandria in Egypt, during the reign of the Ptolemies, 300 B. C. Erasistratus of Chios, and Herophilus of Chalcedon, are mentioned by Galen as eminent anatomists of the Alexandrian school; and Herophilus is said to have obtained permission to open and inspect the bodies of living criminals, to gain a knowledge of internal organs and their modes of action. The writings of Celsus

show that he cultivated anatomy, but the next great steps in advance were made by Claudius Galenus, the celebrated physician of Pergamus. Galen was born at Alexandria, A. D. 181. He collected the works of his predecessors and pursued the study of anatomy, as far as he was able, by dissecting animals. He first showed that arteries in the living animal contain blood, and not air alone, as had been supposed by Erasistratus; but it did not occur to him to notice the movement of the blood in the vessels. This was reserved for Harvey, many centuries later; before which time, the blood was supposed to stagnate in the veins of the living body as it does in the corpse. During the middle ages, the natural sciences, neglected by the Christians, were mainly cultivated by the Arabs; but, as the Mohammedan religion forbade the dissection of human bodies, their physicians were obliged to rely on the knowledge transmitted to them by the school of Alexandria, and chiefly on the works of Galen. Their writings add little or nothing to the science of anatomy, unless it be the names of certain organs translated from the Greek into the Arabic, and afterward, to some extent, adopted by Italian and Spanish writers on anatomy. The spirit of religious liberty and commercial enterprise revived the cultivation of the arts and sciences in Italy during the 14th century; and Mondini di Luzzi, professor of anatomy at the university of Bologna, first publicly dissected 2 human bodies in the presence of medical students, in 1315; and shortly afterward published a description of the organs, from direct observation and dissection. This, with the works of Galen, served as a text book for the schools until the 16th century, when the study of human anatomy from actual dissection became general in the medical schools of Italy. Many important organs still bear the names of eminent Italians, who first described them accurately, at this early period of modern development; and from this time forward, human anatomy has been constantly studied from actual dissection and observation, in those countries of Europe where religious considerations offered least resistance to this mode of proceeding. First Italy, then Holland, Denmark, Sweden, Germany, France, England, and America, have furnished names of eminence in the cultivation and advancement of the science of anatomy; but popular prejudices have hindered the free dissection of human bodies in medical schools, until a very recent date, in many states of Europe, and also in this country. The love of science now prevails sufficiently in civilized nations, to allow the study of anatomy free scope for its development as a necessary basis of correct medical and surgical and general knowledge of the human body, and the intimate structure of organized beings.—Anatomy is now one of the most important branches of natural science, and its various departments have become so extensive as to require separate divisions and distinct methods of

analysis. We have thus comparative anatomy, including every type of animal organization, not excepting man, as one of the types of the animal kingdom—and human anatomy as a distinct branch of study, in connection with physiology, pathology, surgery, and therapeutics. These again are subdivided into distinct branches, under the names of relational or surgical anatomy, descriptive or special anatomy, histological or general anatomy, and microscopical or minute anatomy.—Surgical anatomy treats of the relations of organs to each other, in each region of the body; such as the positions, forms, dimensions, structure, and peculiarities of nerves and vessels, muscles, glands, and membranes, in the head, the trunk, and the limbs; a proper knowledge of which is absolutely necessary to guide the surgeon in his delicate and difficult operations. He must know exactly where to cut and what to avoid in operating on the living body; for the life of the patient might be jeopardized in certain operations, if the surgeon were unskilful or not well acquainted with the relative anatomy of vital organs.—Descriptive anatomy treats of the distinct systems which pervade the whole frame, or perform a certain class of functions in the organism; such as the bones of the skeleton, the muscles, the skin, and the nerves of the whole body; the digestive system; the blood-vessels; the respiratory organs; the generative and the urinary apparatus; the blood and the secretions; saliva, bile, mucus, gastric juice, perspiration, tears, &c.—General anatomy treats of the different tissues which compose a special organ or class of organs, in different parts of the body; such as the 3 distinct coats of the stomach, *i. e.* the mucous membrane, the muscular coat, and the serous membrane, or peritoneal covering; irrespective of the nerves and vessels, glands, and connective tissue interwoven with these coats in the walls of that important organ. Three sorts of tissue are also found in the lungs; *i. e.* the lining mucous membrane of the bronchial tubes and air-cells; the parenchymatous substance of the lungs; and the serous membrane covering the lungs and binding them to the walls of the chest, which membrane is commonly called the pleura. These tissues of the lungs are quite distinct in structure and in function; and either one alone may be diseased without at first involving the others; and thus modern science recognizes 3 distinct diseases of the lungs, as one or other of these tissues is affected; *i. e.* bronchitis, when the mucous membrane of the bronchial tubes and air-cells, is inflamed or irritated; pleuritis or peripneumonia, when the serous membrane is inflamed; and pneumonia when the parenchymatous substance is alone or chiefly affected by inflammatory disease. The treatment differs widely for each of these affections of the lungs; and so of other organs; hence it is important to distinguish the peculiar nature of each special tissue in all the organs of the body.—Minute anatomy dives into the elementary basis of

organic nature; and by the aid of chemistry and the microscope, observes and analyzes the atomic and cell structure of the tissues which compose the organs of the body; the fluids and contents are also subjected to this minute analyses.—Animal anatomy was scantily and almost exclusively studied by the ancients; human anatomy was fairly commenced by the Italian schools of the 14th, 15th, and 16th centuries; the descriptive branch being chiefly cultivated throughout Europe until the end of the 18th; when Bichat instituted and almost originated the systematic study of general anatomy. Microscopic observations had been made by Malpighi and other anatomists, but many of the great discoveries of comparative anatomy and general anatomy have been made in the present age; and the systematic study and development of minute anatomy, date from the improved construction of the compound microscope in 1832; before which time it was impossible to make much progress in this most important branch of science.—Descriptive or special anatomy is limited to the study of the parts which form the body of one type or individual, or of the two sexes of one species, as man and woman. It does not, however, exclude reference to age, and difference of race.—The human species contains 8 different races, dark, fair, and tawny; 2 sexes, male and female; a series of different ages, from infancy to manhood and decline; and numerous varieties of feature, form, and stature, peculiar to race, sex, and age.—The human body consists of 2 lateral halves, more or less symmetrically joined together in the median line. The symmetry is much more evident in the external frame than in some of the internal organs, but the bilateral unity is found, even where it is least apparent. The nose is twofold internally, though seemingly but one organ, compared with the two eyes.—The organs of the body have been classed in various ways by different anatomists, and mostly according to the nature of their special structure, and peculiarity of use or function. A perfect method is still to be discovered, but the usual classifications and distinctions are sufficient for practical purposes. Bichat's method, slightly modified, is most in use, and is, perhaps, the best. By this, the organs are classed as follows: I. Organs pertaining to the animal, voluntary, or relational functions. II. Organs pertaining to the nutritive functions. III. Organs pertaining to generation, or the reproductive functions. To the 1st class belong the organs of locomotion, innervation, voice, and sensation: 1st. The skeleton, composed of bones, cartilages, ligaments, and joints, as instruments of locomotion; and forming the subject of what is termed *osteology*. 2d. The muscular system, composed of muscles, tendons, sheaths, and their appendages, as agents of locomotion; forming the subject of *myology*. 3d. The nervous system, composed of medullary white substance, and gray vesicular matter, enclosed in sheaths of serous and fibrous membrane; forming the brain and spinal cord,

with 48 pairs of nerves, issuing to all parts of the body, as telegraphic wires of sensation and motory reaction. The special study of the structure and functions of the nervous system and appendages is termed *neurology*. 4. The vocal organs, as an apparatus of relational use between man and the external world, are the larynx or throat, and the mouth; the one as an organ of the voice, and the other as an organ of articulation, or speech. 5. The special organs of sense are distinguished into proper and common; taste, smell, sight, and hearing belong to the former, and touch, the sense of temperature, and the muscular sense of resistance, weight, lassitude, &c., belong to the latter. The mouth, the nose, the eyes, and the ears, are special organs, but the whole external surface of the body serves for the sense of touch and temperature, while the whole internal muscular structure seems to be affected by the sense of lassitude, and the muscular parts of the trunk and limbs are affected by the sense of resistance to external weight or force.—To the second class of organs, pertaining to the functions of nutrition and secretion, belong the organs of digestion, respiration, circulation, urination, defecation. 1. The digestive system consists of the stomach, the duodenum, and small intestines, the large bowels, and the rectum, to which are added the pancreas, and the liver, to pour bile and pancreatic juice into the food, as it leaves the stomach and proceeds to the intestines. Mastication, insalivation, deglutition, chymification, chyification, absorption of chyle, and extrusion of refuse matter, are the leading functions of ingestion and digestion. The teeth and jaws are the main agents of mastication, which is a most important step towards good digestion; the salivary glands secrete saliva and pour it into the mouth, when excited by the movement of the jaws in masticating food; the tongue is an important agent in turning the food over in all directions, until well divided by the teeth, and mingled with saliva, of which a volume of 6 or 8 oz. is usually poured out at each meal, when the muscles of the pharynx and the larynx are set in motion to perform the act of swallowing, or deglutition, by which the food is passed from the mouth into the stomach. Here gastric juice is poured upon it, by the glands contained within the walls of that important organ, and a further mingling and churning of the mass goes on, until the whole is transformed into an acid pulp, called chyme. While the muscular walls of the stomach turn the food round in all directions, by spiral movements and contractions, the acid and saline secretions are poured in upon it from the numerous minute glands contained in the walls; and thus a powerful mechanical and chemical action mingles, dissolves, and transforms the food within the stomach to form an acid pulp, and when this is sufficiently advanced, the softer parts begin to flow from the stomach, through the pyloric orifice and valve,

into the duodenum, or first part of the small intestine, where it is met by the bile and pancreatic juice flowing in from the ducts of the two glands. These fluids being of an alkaline reaction, further modify the acid pulp, and give it a more bland and milky character, transforming it from sour chyme into a bland emulsion, which is then absorbed by the *villi* of the small intestine. These villi contain the extremities of the lacteal vessels, which convey the chyle to the thoracic duct, and thence into the veins near the heart, where it mingles with the blood in general circulation. 2. The heart is the centre of the circulatory system, which consists of 2 distinct circles, called pulmonary and systemic. From the right ventricle of the heart, the dark impure blood is sent through the pulmonary arteries into the lungs, where the minute capillary blood-vessels are exposed to the almost direct contact of the air, from which oxygen is absorbed to vivify the blood, and give it a bright scarlet red. A very thin film of membrane intervenes between the air in the lungs and the blood, but this does not impede the absorption of oxygen, and the exhalation of carbonic acid gas, the one to give new life, and the other to rid the blood of poisonous gas and effete matter. When thus purified and renovated in the lungs, the blood returns to the heart, from whence it came, performing a complete circle in the region of the heart and lungs alone, for this sole purpose. It is then propelled from the left ventricle of the heart, through the aorta, and all the arteries of the whole body, into every organ, for the purpose of nutrition. The capillary vessels ramify minutely in every organ, and the tissues of the part absorb the nutrient portions of the fluid, and return waste matter to the veins, in exchange for the nutriment brought to them by the arteries. And thence it is that venous blood is more or less impure, compared with that which circulates within the arteries. There are but two sets of vessels, veins, and arteries, belonging to the round of pulmonary circulation, but there are three sets of vessels, lymphatics and lacteals, or absorbents, veins, and arteries, belonging to what is called general or systemic, or nutritive circulation. The lacteals, or absorbents, carry chyle from the digestive system, and lymph from every part of the body, and pour it into the veins to mingle with the impure blood. The general system of arteries carry pure blood to all parts of the body, and the general system of veins return impure blood from all parts of the body back into the heart, to be thence sent into the lungs for purification, and thus keep up perpetual circulation and renovation. 8. The respiratory organs are the larynx, the trachea or wind-pipe, the bronchial tubes, and air-cells within the lungs. Their function is to breathe in new supplies of air to vivify the blood, and breathe out carbonic acid gas, to purify it from waste matter which is poisonous when accumulated in too large a quantity. 4. The kidneys secrete

urine from the blood, to rid it of another kind of waste matter, which also becomes poisonous to the system if allowed to accumulate too much within the vessels that contain and circulate the vital fluid. When in the bladder it is not dangerous, because no longer mingled with the blood, although it may cause inconvenience if long retained and much accumulated in that reservoir. 5. Defecation is also necessary to purify the blood from waste matter, and keep it fit for the nutrition of the organs, and hence the importance of daily evacuations.—To the third class of organs belong the reproductive systems, male and female. These are not essential to the life of the individual, as they may be extirpated, without danger even to the health of the body, but they are essential to the life of the race, by the continuation of the species. The male and female organs differ in form and appearance, although they correspond in function and are parallel in their distinctions. The female is the most complete, however, in development, being invested by nature with the gestation of the embryo, and the nursing of the child. The ovaries, the womb, the organs of impregnation, and the breasts, form the reproductive system in the female; the testicles, the *vesicula seminales*, the organs of impregnation, and the rudiments of breasts, distinguish the male. The ovum is formed within the ovary of the female; the semen, in the testicle of the male. By impregnation they meet, and form the embryo, which is developed in the womb of the female. After 7, 8, or 9 months of gestation, the child is born, and milk is furnished in the breasts of the mother, to continue the nutrition, until the teeth appear, and are sufficiently developed to perform slight mastication, and enable the child to live on pulpy food.—The time and successive order of appearance of the teeth are liable to vary in different individuals, but the average times and most common order of succession are thus given by Thomas Bell:—“The first set, called milk teeth, are 20 in number, 10 in each jaw; those of the lower jaw usually preceding the corresponding pairs in the upper jaw.

From 5 to 8 months,	4 central incisors.
“ 7 to 10 “	4 lateral incisors.
“ 12 to 16 “	4 anterior molars.
“ 14 to 20 “	4 canine teeth.
“ 18 to 26 “	4 posterior molars.

The two front teeth of the lower jaw usually appear about the 7th month, and the whole set of milk teeth begin to shed between the 6th and 7th years, and are then gradually replaced by a permanent and more complete set, in the following order: those of the lower jaw preceding their fellows of the upper jaw by 2 or 3 months, and generally being less liable to early decay;

6½ years,	4 anterior large molars.
7 “	4 central incisors.
8 “	4 lateral incisors.
9 “	4 anterior bicuspids.
10 “	4 posterior bicuspids.
11 to 12 years,	4 canines or cuspids.
12 to 13 “	4 second large molars.
17 to 19 “	4 wisdom teeth, or 3d large molars.

The wisdom teeth are very uncertain in their times of appearance, and may be sometimes as late as the 80th year, before they are developed. There are thus 12 more teeth in the second than in the first set; the milk teeth being only 20, and the final set, 32."—General anatomy treats of the different sorts of tissue composing the organs of the body; and Bichat made 21 distinctions of animal texture; but later anatomists have modified his method of distinction. It will suffice here to say, that the sheaths or covering membranes of bones, muscles, nerves, and many other organs, are formed of a fibrous kind of membrane, much alike in texture and in its leading properties, whether it be called *periosteum*, or bone-sheath; *myolemma*, or sheath of muscles; *neurilemma*, or sheath of nerves; or *tunica albuginea*, sheath of the ovaries, &c., &c. Serous membrane is also the same kind of tissue in every part of the body, although called *arachnoid* when it serves as a covering for the brain; *pleura*, as a covering for the lungs; and *peritoneum*, as a covering for the viscera of the abdomen, and a lining for the inner walls of the trunk below the chest.—Fibrous tissue; serous membrane; bony texture; cartilaginous texture; fibro-cartilage; muscular fibre, of various kinds, striated and non-striated; glandular tissue; mucous membrane; dermoid tissue or skin; cuticle or epidermic tissue, on the surface of skin and mucous membrane; horny tissue, as the hair and nails; white nervous or medullary substance; and gray nervous, or ganglionic, or vesicular matter;—these form the leading elements of structure in the organs of the body; and diseases are characterized in many instances, not so much by the particular organ affected, in any part of the body, as by the particular tissue affected by disease in any given region.—Minute anatomy goes deeper still into details, and with the microscope and chemical analysis endeavors to find out the elementary structure of the tissues and the fluids of the body. Thus chemistry reveals to us that the simple elements found in the tissues, are, oxygen, carbon, hydrogen, nitrogen, sulphur, phosphorus, magnesium, calcium, sodium, potassium, chlorine, fluorine, silicon, iron, and manganese; the compound elements are of 8 classes: *i. e.* organic substances; substances resulting from waste of the body; and substances of mineral origin; the latter of two kinds—gases and salts: as oxygen, hydrogen, nitrogen, carbonic acid gas, and water; the salts being, chloride of sodium, chloride of potassium, fluoride of calcium, hydrochlorate of ammonia, carbonate of lime, bicarbonate of lime, carbonate of magnesia, carbonate of potassium, bicarbonate of potassium, carbonate of soda, sulphate of potassa, sulphate of soda, sulphate of lime, basic phosphate of lime or bone-earth, acid phosphate of lime, phosphate of magnesia, phosphate of potassa, neutral phosphate of soda, acid phosphate of soda, ammonia, and magnesium phosphate, found in the urine and fæces of

persons suffering from disease such as typhus fever. The compound substances resulting from waste of the body, are, lactic acid, lactate of potash, of potassa, of lime; oxalate of lime, uric acid, neutral urate of soda, acid urate of soda, urate of potassium, of magnesia, of lime, of ammonia; hypuric acid, hypurate of lime, of soda, of potassa; pneumatic acid, pneumatic of soda, teurochlorate of soda, hydrochlorate of soda, glycochlorate of soda; lithofellic acid, glucose, sugar of milk, or lactine; fatty substances, kreatine, kreatinate, urea, chloriodate of urea, cystine; fatty and saponaceous compounds, as cholesterine, serotine, olic acid, margaric acid, stearic acid; oleate of soda, margarate of soda, stearate of soda, oleine, margarine, stearine, elacrine, stearerine; caproate of soda, of potassa, &c.; proteine compounds having no definite chemical constitution, as albumen, albuminosa, fibrine, caseine, pancreatine, mucosin, ptyaline; organic substances, naturally solid or demi-solid, as globuline, crystalline, elasticine, keratine, cartilage, osteine, muscline; pigmentary substances, as hæmatine, beliverdine, urosacine, melanine.—By microscopic observation, the elementary structure of the tissues is found to consist mostly of minute cells. Schwann believed that all the tissues of the body were formed from cells; but subsequent observation shows, that although many tissues retain their original cellular structure throughout life, and many more are formed from cells which are afterward metamorphosed, there are some in which no other cell-agency is employed than that which occurs in the elaboration of the plastic material; certain structureless lamella, commonly called basement membrane, offers no visible traces of cell-structure, but rather resembles the filmy tissue of which the walls of minute cells themselves are formed. It is, however, generally believed that minute cells, more or less modified in form, constitute the elementary organic parts of nearly every tissue, and that all chemical changes occur in them, as integral elements of structure, without altering their numbers and relative positions; that these minute cells, in fact, are as permanent in form as the tissues and the organs they compose; and that all growth in the individual organism takes place by a relative enlargement of these primordial cells, and not by any increase of their number; so that, as the organs remain the same in form and number in the adult as in the new-born child, the same is true of the tissues that compose the organs, and the microscopic cells composing tissues. Each cell is a sort of living microscopic organism, imbibing liquid through its walls, and giving out waste matter by the same means; and containing within its hollow sphere fatty substances, and salts, and liquid matter, as an independent globule, cell, or individuality of organic structure. And moreover, all the fibrous filaments which cannot be traced to cell formation, are not endowed with vital properties as much as other tissues, but form a mere

mechanical link in the system, as earth does in the cellular structure of the bones. The histological or morphological elements of minute structure now recognized, are: 1, homogeneous substance, as cartilage; 2, simple fibre, or coagulable lymph; 3, simple membrane such as forms the walls of cells; and 4, cells. A cell consists: 1, of a homogeneous wall, probably formed of coagulable albuminose; 2, of fluid contents, colored or not; 3, granular contents; 4, a nucleus in the fluid contents, sometimes absent, as in blood corpuscles and cells of fat; 5, nucleoli in the nucleus. The granules contained in cells always contain some fat; but all cells contain fat, even where no granules are found. The diameters of what are termed conoidal cells, are about the 800th of an inch in short diameter, to the 100th of an inch in long diameter; the thickness of their walls vary from the 20,000th to the 24,000th or the 34,000th of an inch. Fat cells are larger, and their walls thicker. The cell wall is never perforated by any nerve or vessels, but it is extremely active in the physical properties of endosmosis and exosmosis, or absorption and exhalation. This activity of cells, however, is not simple absorption, but selection also; as the contents of the cell differ from the plasma of the blood from which it was absorbed. It is a vital process, therefore, and not a merely physical phenomenon. The cells of each tissue have peculiar properties and functions, as different individuals and professions in the same community.—The development of cells, the growth of cells, the functions of cells, and the diseases of cells, have become important branches of physiological study, since the microscope revealed this universe of minute corpuscles in all the vital tissues of the body. In "Bright's Disease" of the kidneys, the uriniferous epithelial cells become fatty cells; and the disease is nothing but a modified state of these cells, more or less differing from their normal state, with power to select urine from the blood, but resembling the known healthy states of other cells (fat cells) in different parts of the body. The fatty degeneration of a tissue, therefore, is nothing but the displacement of true tissue cells by fatty cells, or the metamorphosis of one into the other.—The ovum from which the human being is developed physically, is one of these primordial cells, enlarged and detached from the ovary of the mother, in which about 100 may be seen in a rudimental state, by the aid of the microscope, and 15 or 20 (more or less mature) with the naked eye.—A certain number of cells, or red corpuscles, float freely in the blood, and perform distinct functions. They are as permanent as any of the tissues, and one of their leading functions seems to be, to carry oxygen into the system, and carbonic acid gas into the lungs for exhalation. More than one-half of the blood is composed of these red corpuscles. The rest is called the liquor sanguinis, and contains the elements required for nutrition. Six hundred and eighty-eight

parts in 1,000 of the liquor sanguinis consists of water; 812 of solid matter. Three-fourths of the muscular tissues consist of water, and 18 per cent. of the bony tissues. Four-fifths of the whole weight of matter in the body, in fact, are composed of liquid, and only one of solid substance. A wooden box 16 inches cube, the walls of which were one inch thick, and the interior being filled with water, would very nearly represent the relative weights and proportions of solid and liquid constituents of the human organism; for the dried mummy of a body weighing 120 lbs. would not weigh more than 25.

ANATOMY, COMPARATIVE. See **COMPARATIVE ANATOMY.**

ANAVA, a river of Brazil, a tributary of the Branco, 200 miles long, and flowing through Portuguese Guiana.

ANAVELHANA, a navigable river of Brazil, in length 220 miles. It flows nearly due south, and empties into the Rio Negro, near Toroma.

ANAXAGORAS, the son of Hegesibulus, and reputed pupil of Anaximenes, was born at Clazomenæ, in Ionia, about 500 B. C., died about 428 B. C. He rejected wealth and honors that he might indulge his love of meditation and philosophy. From Clazomenæ he removed to Athens, where he lived in the closest intimacy with Pericles, and also numbered among his friends or pupils several of the most distinguished Athenians of that period. Anaxagoras is supposed to have been the first among the Greeks who conceived of God as a Divine Mind acting upon matter with conscious intelligence and design. He taught that the sun was no deity, but an inanimate fiery mass, and therefore not a proper object of worship, and that the miraculous appearances at sacrifices were explicable by natural laws. Mathematics and astronomy claimed a great deal of his attention, and in both he made many discoveries. He suggested that the moon shone by reflected light, and rightly explained solar and lunar eclipses. His attempt to account for these phenomena, at that time regarded supernatural, on natural principles, brought him into great danger. On one occasion, some Athenian priests having predicted disasters to the state from the appearance of a ram with a single horn, he opened the head of the animal and showed the peculiarity of structure which had prevented the growth of the other horn. He gave moral expositions of the myths of Homer, and explained the names of the gods by allegory. As a penalty for what was accounted his impiety, he was condemned to die. When informed of his sentence, he said that nature had passed that penalty upon him before he was born. Being questioned as to the disposition of his remains, he manifested entire indifference, saying that the road to the other side of the grave was as long from one place as another. Owing to the powerful influence of Pericles his sentence was commuted to banishment. He retired to Lampascus, and died there soon after,

in poverty, at the age of 72. A little before his death, the senate of Lampasacus sent messengers to inquire what commemoration would be most acceptable to him; he answered, "Let all the boys have a play day on the anniversary of my death!" This festival was called *Anaxagoreia*, and was observed for many centuries. His writings were not greatly esteemed by Socrates. The fragments of his works have been collected by Schorn, Bonn, 1829, and by Schaubach, Leips. 1827.

ANAXAROHUS, a philosopher of Abdera in Thrace, a contemporary with Alexander the Great. He attended that monarch into Asia, and succeeded in winning his friendship by servility and adulation. After the death of Alexander, Anaxarohus, while returning to Greece, is said to have been shipwrecked on the coast of Cyprus, and pounded to death in a mortar by order of Nicocreon, one of the princes of that island.

ANAXIMANDER, an eminent philosopher of antiquity, was born, according to Apollodorus, at Miletus, in the 42d Olympiad (B. C. 610). Of his personal history not much is known. He is said to have led a colony to Apollonia in Illyricum, and many wonderful deeds and inventions are ascribed to him. Grecian philosophy is indebted to him for the word *αρχη*, signifying origin or principle. He was the first to introduce the metaphysical question concerning the one and the many, the constant and the variable, the essence as distinguished from phenomena, the discussion of which, under one form or another, engrossed so much of Grecian philosophy. His theory of nature differed essentially from that of Thales, his reputed friend and teacher,—the hypothesis of the latter being founded entirely upon physical considerations, and therefore encouraging the careful investigation of natural phenomena; and that of the former being susceptible of metaphysical treatment alone, and though sometimes looking to nature for illustrations, never resting upon it as a necessary support. The general doctrine of Anaximander, as vaguely stated by ancient writers, concerning the origin of nature, was that the first principle of all things is infinity (*το απειρον*); that the universe, though variable in its parts, as a whole is fixed and unchangeable; that infinity is the beginning and end of all things. Under this term "infinity," Anaximander probably conceived an original principle undetermined by actual qualities, yet potentially containing all qualities, and from its own independent, self-changing nature, manifesting them all in the variety of creation—a principle entirely unconditioned, except as having the capacity to produce phenomena. The doctrine that out of nothing generation is possible, which gave the old philosophers so much trouble, he thus sought to shun; and yet his primal essence or principle, devoid of every actual attribute but the power to produce phenomena, is simply nothing endowed with this capacity for generation.

Whatever may be thought of Anaximander's system, his service to Grecian philosophy by introducing a method more purely speculative than any which had preceded it, can hardly be over-estimated. But this philosopher had other claims to the gratitude of the Greeks. He was the first to commit philosophical doctrines to writing. He wrote a treatise on geometry, and made calculations on the distances and size of the heavenly bodies. He held that the stars are globes of air and fire, animated by divinity, that the earth is a globe fixed in the centre of the universe, and that the sun is 28 times as large as the earth. He was the first to compose a treatise on geography, and to prepare a chart of such portions of land and sea as he was acquainted with. According to some authorities he was the inventor of the sun-dial. He died at the age of 64.

ANAXIMENES. I. Born at Miletus about the 56th Olympiad (B. C. 556), or, according to Apollodorus, in the 68d Olympiad, is commonly reputed to have been the friend, pupil, and successor of Anaximander; but Ritter sees a strong resemblance between his doctrines and those of Thales. He taught that the essence of all things is a subtle ether, which he called air, animated with a divine principle, whence it becomes the origin of beings, that the sun and moon are fiery bodies of a flat, circular form, that the stars are also fiery substances, fastened like nails in a crystalline sphere, and that the earth is a tablet resting on air. II. A native of Lampasacus, a rhetorician and critic, was one of the preceptors of Alexander the Great. He wrote a history of Alexander's reign, and that of his father Philip. He was also the author of a history of Greece.

ANAZO, a large river of Abyssinia, formed by the union of the Ancoona and Sabelatte rivers, joined to the Meles. It flows nearly due east, till within 10 miles of the ocean, when it disappears from the surface.

ANBERTKEND, the Hindoo name of a celebrated book of the Bramins, literally signifying "the cistern wherein is the water of life." It contains the Indian philosophy and religion. There is a translation in Arabic, entitled *Morat al Maani*, "the marrow of intelligence."

ANCAOH, a department of north Pera on the Marañon, divided into 5 provinces; capital, Huaraz. Population in 1850, 219,145.

ANCELOT, JACQUES ARSÈNE FRANÇOIS POLYCARPE, a French dramatist, born at Havre in 1794, died in Paris, Sept. 7, 1854. He made his *début* in 1819 by his tragedy "Louis IX.," which was very successful, and brought him a small pension from Louis Philippe. He adapted Schiller's *Fiesco* for the French stage, and produced 2 other dramas, *Olga*, and *Blancheth d'Angleterre*, when on the breaking out of the revolution of 1848 he lost his pension, and was compelled to support himself by the writing of vaudevilles. In 1841 he became a member of the French academy. In 1849 he

was sent by the French government to Turin, Florence, Brussels, and other capitals, to negotiate with the respective governments about the international copyright question, and some treaties since concluded are due to his intelligent activity.—*MARGUERITE VIRGINIE*, the wife of the preceding, was M^{lle} Chardon of Dijon, born in 1792. At the Paris exhibition of pictures in 1825 there was a drawing of hers, *Une lecture de M. Anselot*, which attracted much attention, from the fact that almost all the *littérateurs* of Paris figured in it, and also on account of its intrinsic merits. She has written some novels, and many plays for the vaudeville theatre, which, for some time, was under the direction of her husband.

ANCESTORS (Lat. *anceps*, contracted from *antecessor*, one who goes before), those from whom a person is descended. Many nations and tribes pay divine honors to their ancestors. The *lares*, *lemures*, and *penates*, or household gods of the Romans, were originally the departed souls of their forefathers. The Chinese at this day pay extravagant honors to their ancestors. No calamity is so grievous as the extinction of a family, so that no representative is left to sacrifice at the ancestral shrine. The ancestors of the New Zealand chiefs are the Atuas or deities of the tribe. All the long-haired kings of the Teutonic family derived their descent from Woden or Odin, those of Hellas, through various demigods, from Zeus. In the early life of a community the ancestral derivation is a matter of the highest importance. In the patriarchal state it generally happens that if one is not the descendant of the real or supposed ancestors of the tribe, he can be nothing but an alien. In Athens before the time of Cleisthenes, to be a citizen and enjoy full civil rights, one must have descended from some of the genealogical founders of the 10 tribes into which the population of Attica was divided. In Germany in the 15th century the practice began of proving the nobility of a person's ancestry, and this test must be undergone before the applicant could enter into a knightly order, into any chapter or court office, or take part in any tournament. In the French army, before the revolution, and some other continental armies, a certain number of generations of noble ancestors was a condition of holding the rank of officer in the army. To "have a grandfather" is a common saying to designate that the individual of whom it is spoken is of at least respectable descent. The wisdom of our ancestors was long a favorite party cry with British conservatives. As societies become older and more democratic, the ancestral tie weakens, until it becomes of as little social and civil importance as at the present day in the United States.

ANCHER, PEDER KORFØR, a Danish jurist of the last century, was born in the island of Bornholm, June 14, 1710. After studying at the academy of Sorø he finally graduated at the university of Copenhagen. In 1741 he

was elected to the chair of jurisprudence in the latter institution. He afterward filled several important offices in the Danish state, and died in 1788. His most valuable works are a "History of Danish Jurisprudence" in 2 volumes, (Copenhagen, 1769-'76), and an edition of the "Ancient Provincial Laws of Jutland" (Copenhagen, 1788).

ANCHÈRES, DANIEL, a French poet of the 17th century, born in 1586, in the vicinity of Verdun; died about 1650. Early in life he served in the French army, but soon exchanged the sword for the pen. In 1608, he published a somewhat eccentric tragedy, *Les Funestes Amours de Belcar et de Méliane*, with a collection of love poems, dedicated to James I. Soon after the publication the author went to England to seek the patronage of the king. He was favorably received, and at once showed his gratitude by a new work; and 2 years later, more especially by the first 2 books of an epic poem consecrated to the glory of the illustrious house of Stuart. The *Stuaride*, as it is called, is a ridiculous compound of odd fiction and bad verse. The origin of the Stuart race is traced up to Astraea, who condescended to forget her vow of virginity, that she might, by marrying Banquo, become the ancestress of the royal line of Scotland, and above all of the British Solomon. The king was very much pleased with this mythological effusion. Anchères did not leave England till after the death of his protector when he returned to France.

ANCHERSEN, MATTHIAS, a learned Dane, was born at Colding, March 16, 1682. He graduated at the school of Ribe in 1698, and was appointed rector of the academy at Fridericia in 1701. In 1706 he left Denmark on a tour through Europe for the purpose of studying the oriental languages. He returned to Denmark in 1709, and became in the same year professor of mathematics in the Copenhagen university. In 1781 he was chosen bishop of Ribe, in which office he died in 1741. His chief works are a *Spicilegium defectus lexicorum Rabbincorum* (Copenhagen, 1704), and *Poema Abu-Ismaelis Tograi Arabicum* (Utrecht, 1707). Of the latter only 50 copies are extant, nearly the entire edition having been lost on its way from Holland to Denmark.

ANCHIETA, or **ANCHIETTA**, JOSÉ DE, one of the earliest Christian missionaries to Brazil, born at Teneriffe in 1583, died June 9, 1597. He was a scion of an ancient Biscayan family allied to the Loyolas. He received his earliest education in the Canary islands, where his mother was a native, and afterward studied at Coimbra. He joined the Society of Jesus, and was sent in 1558 to the then unexplored Brazil. He learned the Indian language, and preached with much success to the Tupinambas and Tamoyos. He spent a lifetime in roving over the trackless solitudes where only primitive nature and primitive man were to be found; but he always kept up his ardor for good Latinity. When he died 800 Indians formed

his funeral cortege. He left many works which remain for the most part in manuscript; one which was published by the academy of sciences at Madrid, is on the natural productions of Brazil. It shows the author to have been as ardent a naturalist as he was a missionary, a Latinist, and an aboriginal linguist.

ANCHISES, the son of Capys and Themis, and father of Æneas. He was related to the family of Priam, and was king of Dardanus in Phrygia. Anchises was so surpassingly beautiful that the goddess Aphrodite became enamored of him, and visiting him in the disguise of a Phrygian princess, became the mother of Æneas. According to Virgil, Anchises survived the capture of Troy, and was borne from the burning city on the shoulders of his son. The Mantuan bard makes him die in Sicily during the first sojourn of Æneas in that island.

ANCHOR, an iron instrument for holding a ship or other vessel at rest in water. A vessel is provided with at least 2 bower anchors hanging from the catheads, which are horizontal beams projecting from the deck over the bows, and with the same number of stream or kedge anchors, which are used for towing, for steadying the vessel by mooring from the stern, and for other purposes. These 2 kinds of anchors are similar in shape, and differ only in size, so that a stream anchor from a three-decker, is identical with a bower anchor from a vessel of smaller proportions. Anchors are called solid or ordinary when the shank and arms are wrought into a body; they are called portable when they can be taken to pieces. Each part of an anchor has a distinct name; the shank or the central part of the instrument is a round bar of iron tapering toward one end, where it becomes square; the arms are 2 curved pieces projecting from the heavy end of the shank at right angles with it, and in opposite directions from each other; the stock is a transverse beam, of wood or of iron, fastened to the square end of the shank at right angles with it and with the arms; it cants the anchor when the arms fall on the bottom in a horizontal, instead of a vertical position; the square is the square end of the shank; at the extreme end just beyond the place where the stock is fastened, the square is bored through for attaching the shackle by means of a pin; the shackle is a ring, by means of which the cable or chain is attached to the anchor; the crown is the extreme end of the shank, or the external part of the arms, on which the anchor falls when let go in a vertical position; the palms or flukes are parts of the arms of a shield-like form, which are near their extremities, and constitute the holding surface of the anchor; the arms extend from the shank in a curve. That part of each arm which sustains the palm is called the blade, and the part which projects beyond the palm, and has to open the ground, is named the point, peak, or bill.—In regard to the best proportions and best shape of these various parts, there are as many opinions as there are

authorities on the subject; they nevertheless all agree in making the shank shorter, and all parts heavier than was usual 50 years ago. To enable every one to judge for himself, we will now describe the various strains, shocks, &c., to which anchors are subjected, and point out the forms that theory indicates as best to resist to them. Preparatory to casting anchor, every obstruction is removed from around the chain, which is so arranged as to run freely out, and a man is placed near the cathead. At the command of "let go," a pin is hammered out, and the anchor falls vertically through the water on the ground. On an even bottom the crown will strike first, but a hard rock may project, and one of the arms may strike it. To resist such a blow, the cross section of the arm has to be higher than it is wide, and similar sections ought to have decreasing heights from the crown to the bill. After striking the ground the anchor falls sideways, the arms lie flat, and the stock rests on one end. A length of chain proportional to the depth of water, and so calculated that the hardest pull of the vessel will not lift it entirely from the ground, is permitted to run out, and is secured to the vessel. Soon after the action of the current or of the wind on the vessel makes her exert a traction on the chain, and this lying on the ground pulls down the shackle, bringing the stock flat on the bottom, and the arms perpendicular to it—this is called canting the anchor. The longer the stock, and the shorter the arms, the less force will be required to perform this operation; hence, in all anchors, the stock is longer than the arms. The effect on the stock is one of compression without lateral strain, the proper form of its section is that of a circle, and the stock has to be a bar of round iron, or a tube. After canting, the anchor will be dragged or will hold. Quick holding depends on the sharpness of the bill and the angle of the palm with the ground. As the sharpening of the bills from time to time, as they wear out, may be done at a trifling expense, ship owners ought to be very careful to have it done, as it may prove the saving of the ship in many circumstances. A sharp angle of the palm is also favorable to quick holding, and if this property alone was considered, it would be made much more acute than usual. After the bill holds on, the palm and arm enter the ground till, if the soil is not too hard, the shank lies on the bottom. In this new position, the angle of the palm with the horizon will be different from what it was when the anchor was just canted, and, for good holding, it has yet to be such as to give the blade a tendency to go deeper into the ground. For this reason, the angle cannot be made as sharp as would be most advantageous for quick holding. Practice has taught us to make it from 70 to 80 degrees when the anchor is canted on the floor. The angle of the palm with the shank results from the one described, and from the relative lengths of arms and shank.—For weighing anchor, the chain or

cable is taken in till the bow of the vessel is brought over the shackle; here, an increased pull is necessary to trip it, and the anchor is raised to its place. The property of quick tripping depends on the curve of the arm, and on the angle of the palm; they have to be such, that when the shackle is pulled up vertically, the bill cuts open a short curved circular way in which the palm and arm follow. When the palm is out, the ground is torn open by the arm, which is comparatively sharp, and acts with a more advantageous leverage than the palm would. No general principle can guide as to the shape of the arm, experiments alone have to be relied upon. The importance of this subject is evident from the fact that more than two-thirds of the ruptures of anchors happen in the operation of weighing. We have said that the arms ought to be thicker in the dimension parallel to the shank, to resist shocks against rocks. The same is necessary to resist the strain in tripping. The shank is exactly in the same circumstances, and has to be thicker in the direction of the arms, and to decrease in size from the crown to the square. Though theory indicates rectangular sections as best for the arms and shank, they are in practice made round, oval, or at least the angles are much rounded. This has been found necessary for the preservation of cables, which often take a turn around the anchor when the vessel changes its direction with the tide or wind. In devising a new anchor, the danger of the ship grounding upon it in shallow water, and of a hole being made in her by projecting parts, is an important consideration to keep in sight.—The following proportions of parts is an average of those in use: Length of shank, 100; length of each arm, from the crown to the bill, 40; length of stock, 100; radius for describing the outside curve of the arms, 85; angle of the face of the palm with the shank, 51°. With such proportions the angle of the shank with the ground is 24°, and that of the blade 75°. Less than 50 years ago, anchors were tried by letting them fall from a height on old guns or heavy pieces of iron, the result of this barbarous process was, that many good anchors were broken, and many bad ones were considered safe; the manner of falling being necessarily left to chance, it was, in fact, no trial at all. At the present day, the hydraulic press is substituted, and by proper arrangements the strength of each part may be exactly measured, and anchors of different makes compared.—No less important improvements have been introduced in the manufacture of anchors. The experience acquired in forging the pieces of large steam-engines and the tools devised for the purpose, has been taken advantage of in anchor making, and for the "Hercules" worked by hand of former days, Nasmyth's steam-hammer has been generally substituted. The fan-blast has also taken the place of the bellows, and the furnaces have been improved. The several parts of anchors are forged like any other pieces of machinery,

either by piecing or by using blooms, and are afterward welded together. The process of annealing anchors after they are finished was formerly considered as absolutely necessary, and when anchors were very indifferently manufactured it made the defects visible. Several makers are now of opinion that anchors not annealed are stronger and more elastic, and are satisfied with roasting the anchors but just enough to take away the polish produced by the hammer, thus giving them a better looking surface. The proof-strains to be applied to anchors by the hydraulic press, are:

Anchor. Cwt.	Strain. Tons.	Anchor. Cwt.	Strain. Tons.
100	67	40	25
90	63	30	22
80	58	20	20
70	53	10	19
60	48	5	7
50	43	1	8

We give, from a good authority, the following table of approximate values of the properties considered essential to a good anchor:

Essential properties.	Approximate values.
Strength	45
Holding	80
Quick holding	15
Cantering	15
Facility of sweeping	15
“ “ stowing	10
Exemption from fouling	10
Fishing	10
Facility of transport in boats	5
Quick tripping	5
Total values,	160

The changes effected in the machinery have proved as beneficial in diminishing the cost, as they have in improving the work. Formerly an anchor of five tons weight would cost \$2,000; a much better one of the same weight can now be sold for less than \$1,250.—The preceding general remarks apply to all kinds of anchors, portable or solid; we will close the subject by a description of the parts worth noticing, in the numerous inventions which have been presented to the public. An iron stock is generally a round bar of iron with a collar near the centre. It is put through a hole in the square of the shank, the collar resting against one side, and being kept there by a forelock which passes through the stock on the other side of the square. Another plan to hold the stock is to pass a round pin through the centre of the square and of the stock; a stop is wrought on the stock in place of a collar to fit in a slot in the square. This plan admits of refitting by the process called upsetting, and avoids any hole being made in the stock near the shank, where the stock bears the greatest amount of pressure when the anchor is dragging. In both these arrangements, as well as in all other joints of parts which have to be separated occasionally, it is good to tin the pins, keys, and the surfaces in contact, to avoid rusting. As oxidation by sea water can only be retarded by this process, it is also important to take the anchors to pieces

once every three months, and to clean the joints before they have become too hard. A wooden stock has generally a square section tapering both ways toward the ends; it is encircled with iron hoops, and a square hole is cut in the centre to fit it on the square of the shank. An improved plan is to make it of two pieces by cutting it lengthwise, and to forge projections from the square to be enclosed between the two parts of the stock and furnish large bearings; the two halves after being put on are hooped together. The two arms of a portable anchor called flukes are in most of them attached to the shank by means of a pin through the centre of the flukes, and through jaws forged on the end of the shank. The flukes may either be kept firm by forging lugs on them to embrace a shoulder on the shank, or they may move around the pin. In this case the extent of the motion may be limited by a second pin through the shoulder playing in a long hole in the flukes, or simply by the bills coming in contact with the shank. When the flukes are movable they have to be so shaped that when the upper arm is drawn as near the shank as possible, the other fulfils the proper conditions for holding, as above described. To force the arms to assume this position, it is necessary to provide each of them with a horn projecting outward just above the palm. This forms a secondary bill, which holds quick, and brings the arm in a position to hold also. The two arms may be forged separately, with a tenon at the end of each, by means of which they are fastened to the shank, on which mortices are cut to receive the tenons. Sometimes the anchor is divided lengthwise in two portions by a plan perpendicular to the arms, and passing through the axis of the shank. Each half of the shank is forged of a pin with one arm, both halves are bound together by hoops, and the stock is placed over the whole or through it, after one of the plans above described.—Attempts have been made to manufacture anchors of a character totally new. One plan consists in dispensing altogether with stock. The arms are movable on the shank around their own axis, and the palms are set in the same plan, that is at right angles with their usual position. The arms are provided with a tumbler acting crown which holds fast and makes the arms revolve, thus bringing both palms lower than the shank, in which position they both hold. The proper amount of rotation of the arms is determined by the upper part of the tumbler coming in contact with the shank. For this arrangement many advantages are justly claimed. 1. It holds nearly as much as two anchors. 2. It will not foul or cut the cable. 3. It does not require a stock. 4. It does not impede the motion of the vessel in being hove up; will stow without projections; cannot injure the bows in weighing. 5. In the event of the ship grounding upon her anchor she cannot be injured. Another plan without stock is to substitute for the arm a cap or reversed cup, called

parachute, making the anchor represent exactly a miahroom. Large holes have to be left in the cup to prevent it from coming up full of sand or mud. An invention but a few years old consists in using a screw with a small core and a large thin thread, which is inserted deep in the ground by turning. It seems an impracticable thing in ordinary cases, but may be very good for mooring in exposed situations, buoys, or boats, to which vessels may tie themselves. The last novelty is an anchor with an elastic shank. The principle of having a spring between the soil and the vessel is undoubtedly excellent. Some kind of spring is even indispensable, as it may be safely said that without the natural spring formed by the curve in the chain which unites a ship to her anchor, no practical arm or chain could resist the sudden jerks from a mass of several thousand tons, but the proper place for the spring is on board. The anchor is the worse place for the spring, as every time it plays, the chain harrows the ground, and on hard rocks would soon be destroyed. There is no particular place celebrated for anchor making in the United States. Anchors are made principally in Pennsylvania and Maryland, where the rough material is at hand.—The form of the anchor has undergone but slight modification since the time of Anacharsis, the Scythian philosopher, about B. C. 594. Before him anchors with one arm or tooth had been a short time in use, but he first added the second. The later Greek anchors were of iron, but originally they consisted of large wooden pipes filled with melted lead. In the heroic times of Greece, large stones were sunk into the water by ropes to hold the ship; and a little later bags of sand and baskets filled with rocks were used. Every ship was supplied with from 4 to 8 anchors. The largest of them was termed the sacred one, and hence the phrase, "to drop the sacred anchor," meant to fly to the last refuge. The Chinese anchors, now as in ancient times, are only crooked pieces of heavy wood.

ANCHOR ISLAND, a small island of New Zealand, on the N. side of the entrance into Dusky bay.—Also two islands off the coast of Brazil, province of Rio Janeiro, 8 miles east of Cape Frio.

ANCHORETS, ANCHORITES, or more properly **ANACHORETS**, a term signifying persons retired from society, and applied to such as have withdrawn themselves with the specific purpose of attaining a higher degree of spirituality. It is also particularly applied to an order of secluded Christians, who have flourished since the middle of the 3d century. The great problem of the origin of evil, which has perplexed every ethical system of the race, has persistently led, in one direction, to a dualistic theory of the universe. The dualistic theory affirms the existence of two antagonistic eternal principles or beings, the evil and the good, and ascribes the creation of the material universe to the evil power. But the worthy end of human effort

was to become harmonic with the good. Life, to all who embraced the dualistic theory, therefore, became simply a struggle to rise above earthly influences and conditions, as evil. It was thought there was power in a determined effort of the human will, to escape from the thralldom of sense, into a purely spiritual existence. This theory appears in its most marked form in Braminism, which taught that men who devoted themselves earnestly to the work of penance and privation, would gradually lose their connection with this life, until in the ultimate transition they would be wholly absorbed into the great invisible Bram. The same idea, with slight modifications, was early incorporated into Christian ethics, and developed itself in the order of anchorets, and later, in monasticism, and still lingers in the ascetic practices of both great branches of the church. It has long been a question of debate, what is the connection of the earlier ascetics with the monastic institutions of after time, but it is quite evident, whatever may be the final decision of that question, that they have both the same philosophic origin. Ascetics were not necessarily monks, nor founders of monasteries, but monks and monastic institutions were necessarily ascetic. The anchoret is to be distinguished from the monk in several respects. The anchoret precedes the monk in point of time, as a development of the ascetic idea. He possessed less of the social character than the monk. His seclusion, though it might be less perfect, from lack of the means, which the monk found in his monastery, was more universal. The monk had associates in his seclusion. He only withdrew wholly from the mass of men to the society of a few; the anchoret withdrew mostly from all men. He was an eremite, a dweller in the desert. He found some cave, or mountain fastness, where he shut himself away from his kind. In this isolated condition he lost the polish of social life, and became almost a savage in his appearance and demeanor. This was the early life of the anchoret. Later, when artificial means multiplied, and the anchorets began to feel the reaction of the social elements of Christianity (840), they built themselves dwellings, where they congregated together. About the same period monasticism was instituted. Monasticism is only a socialized and organized eremitism. But the anchorets are still to be distinguished from the monks. The distinction is that the monk is at a less remove from society than the anchoret, while at the same time his seclusion is attended with more organization and detail. This distinction is clearly seen in the fact that 8 centuries after the institution of monasticism, the Trullan council (692) ordain that no person shall be admitted an anchoret until he has resided 3 years in a monastery. The anchorets have preserved the distinction to this day. They are still to be found, in the East, unconnected with any convent (although Charlemagne ordered

that they should thus connect themselves, throughout his dominions), and preserve the same ascetic mode of life, scarcely influenced by the more social type which modern Christianity has assumed in all branches of the church. The extreme penances and mortifications to which the early anchoret subjected himself, seem almost fabulous. They lived for years in caves or cells scarcely large enough to admit of motion, where they practised the most rigorous and prolonged abstinence; stood in uncomfortable attitudes until permanently deformed; looked at the sun, without winking, until they were blind; and repeated mystical syllables and sentences, holding the breath, expecting so to secure an influx of divine life, or to be absorbed into the Deity. Simon Stylites, a Syrian (420), is a remarkable example of ascetic practice. It is said that for 40 years he lived on the top of a pillar, or tower, near Antioch, exposed to all atmospheric changes, and claiming to be a mediator between heaven and earth, preached repentance to the crowd who gathered below. His eastern origin will account for the superior rigor of his asceticism. Some writers consider Enoch, Elijah, John the Baptist, and Jesus, to have been anchorets. The Therapeutæ of Egypt, who were probably derived from the Jewish Essenes, were anchorets, or at least ascetics. The same is true of the Nazarites of the Old Testament. But so far as Christian anchorets are concerned, they must be referred to the time of the Decian persecution, as the era when they first attained to any historic consideration. This was the immediate impulse which filled the forests and deserts of Syria and Mesopotamia with a race of exiles who preferred the isolation and gloom of a cave to the renunciation of their faith or the horrors of heathen torture. They naturally turned to the East in their exile, as offering more sympathy with the Gnostic and Manichean philosophy, which lies, though unconsciously, at the foundation of asceticism. And for the same reason, all the forms of the ascetic spirit were developed later in the Western church than in the Eastern.

ANCHOVY, a small fish of the genus *engraulus* of Cuvier, the peculiar features of which are the opening of the mouth extending behind the eyes, and the long sharp head and projecting upper jaw. It is distinguished from the sprat, and other similar fishes, by its very short anal fin, and the dorsal fin being immediately above the ventral. Anchovies enter the Mediterranean from the sea in enormous shoals in the spring, and deposit their ova along the shores in May, June, and July. They are caught like the herring, with nets at night with the use of lights. Gorgona, a small island west of Leghorn, is a famous place for the fisheries, and it gives its name to the best qualities of the commercial article. Other important fisheries are along the coasts of Provence and Catalonia. As the fish are taken, the bodies, separated from the heads and entrails, are salted and packed in small barrels, and in this state are ready for

exportation. Sent to other countries they are there repacked in bottles. The brine, in which they are kept, is reddened with ochre and Venetian red, which is supposed to be done for the purpose of concealing the other dirt. Notwithstanding their impurities and the substitution of many inferior fish, anchovies are a favorite relish at the breakfast table with many, being taken out of the bottles and eaten raw. Anchovy sauce has been a favorite condiment from the time of the Romans. They called it *garum*, and prepared it as it is now made, which is by bruising and boiling the fish over a slow fire with melted butter.

ANCHYLOSIS (Gr. *αγκύλωση*, a bending), a stiff-joint, which may be fixed either in a crooked or a straight form. Joints are so constructed as to allow the motion of contiguous smooth surfaces one upon another, in the manner of a hinge or ball and socket articulation; and this motion is facilitated by the intervention of a thin synovial fluid between the smooth surfaces of the contiguous cartilages within the joint. The lubricating fluid is secreted constantly by a synovial membrane surrounding the joint, and lining probably the surfaces within; motion of the parts being necessary to the secretion of the fluid, the functions of all parts of an articulation harmonize in the natural and healthy state; but disease or accidental want of motion in the parts may interfere with the natural equilibrium of the functions, and produce a serious derangement of the natural relations. Whatever interferes with the regular secretion and absorption of the lubricating synovia, naturally causes difficulty in the motion of the articular surfaces upon each other, and if the interruption be continued long, the joint is apt to become stiff and quite immovable. All organized structures in perpetual contact, without motion, have a tendency to grow together in the organism; and where a joint, for want of motion and of lubricating fluid between the contiguous movable surfaces of cartilage, is kept long in these conditions, the surfaces are apt to grow together and form an anchylosis, or stiff-joint, or immovable articulation. When the bones of a limb are fractured near a joint it is sometimes necessary, after adjustment of the fractured parts, to fix the limb in one immovable position, until the parts unite again; and this requires mostly several weeks at least, during which time the joint is never moved; and where the inflammation caused by the first injury spreads to the joint in the vicinity, it may induce absorption of the lubricating synovia and cause the articular surfaces to grow together, forming a stiff joint or anchylosis.—Disease in the bones from other causes may produce similar results; and sometimes it is impossible to remedy the evil. In such cases, it is important to give such a form to the stiff-joint as shall cause it to be least inconvenient to the patient. When anchylosis of the finger joints is apprehended from injury to the hand, it is better that the fingers should be partially

bent inward, than remain extended; as they are more useful in one position than the other. When the knee-joint is undergoing the process of anchylosis, the limb should be kept straight, as that is the least inconvenient position for a stiffened leg. The elbow-joint should be kept bent; and whatever be the joint affected, care should be taken to secure the best position of the parts, where anchylosis is inevitable and cannot be prevented.

ANCIENTS. Under this name is commonly comprehended the epoch of the Greeks and the Romans; representing their culture, wisdom, civilization, and the various notions, religious and social conceptions, which prevailed among them. But in a strict sense any epoch separated by long intervals from another is ancient, and for reasons innate in human nature, is more or less venerated by succeeding generations. Each nation and epoch transmits to its successors the results of its discoveries, creations, and experience; and such transmissions are received with deference, and exercise an authoritative influence upon the minds of posterity. The Greeks, who are now considered as ancients, not only paid veneration and deference to the names and the deeds of the heroes of their own race, but looked to the Orient with almost the same sentiment that modern nations entertain for them. From the East came most of their heroes and founders, from the East they received their religious symbols, and the art of writing. Pythagoras, Plato, and many of the Greek founders of philosophy, went to the Orient as to the source of knowledge. The Greeks considered Egypt as the sanctuary of ancient wisdom, and the Egyptian priests, its guardians and depositaries, considered the Greeks as mere youths and moderns.—The contest between the worshippers of a past and those to whom the present is all, existed among the Greeks, and Plato said "that the old men were not wholly giants, neither the new men dwarfs." The past is always wrapped in a certain halo of authority, especially for dependent minds. The Romans received their mythology, refinement, arts, rules of style and poetry from the Greeks, whom they studied as models. The Roman youth were educated in Greece; and to justify any pretension to culture of mind, it was necessary to master the Greek language, to have, at least, Greeks for teachers, and to receive the last finish in Athens. Greek philosophers, teachers, grammarians, crowded Rome in the later times of the republic, exciting the hatred of Cato, who wished to have them all expelled from the eternal city. At the time of Augustus, this deference to the Greeks reached its culminating point, and continued after him. Pliny the younger defended himself from the reproach of not admiring his contemporary epoch, and his own country. Phædrus ridicules Roman artists and scholars for heading their productions with well-known Greek names. Chronologically the separation between ancient and modern times is marked by the

birth of Christ, and mentally by the development and elaboration through the following centuries of the Christian idea, which marks the dawn of the Christian historical epoch. The direct productivity of the ancient culture died slowly out in the 8d century; very few, if any, important names mark the fourth. Neither the New Platonists in Alexandria, themselves imbued with oriental conceptions, nor the short reaction in favor of the past under Julian, could restore life to ancient culture. Constantine the Great inaugurated the new epoch as a positive historical fact, and the ancient epoch as an idea, was superseded. But the past still had worshippers, all the gods were not entombed, and a new struggle began. The Pagans accused the Christians and their newly inaugurated religious conceptions, of tending to dissolve society, and of occasioning all the terrible calamities which marked the decay of the Roman world; while Christian writers and the fathers of the church refuted these accusations. This was one of the earliest conflicts between ancient and modern times. In this struggle originated the great work of St. Augustine, *De Civitate Dei*, in which are laid down the germs of the philosophy of history, developed in our times under the name of the providential theory. Orosius, a disciple of St. Augustine, wrote history with the same purpose of refutation. The ancient mythology and worship disappeared almost wholly before the new system, a few obscure corners in Greece only excepted, where Zeus or Aphrodite was still served to the end of the 8th century. During the first centuries of the middle ages, the ancients were almost unknown, the study of the Latin language being limited to the church, and to the vestiges of the Roman laws; the Greek classics were not thought of, or almost unknown in western Europe. The philosophy of Aristotle, on which for centuries the scholastic science was founded, was not drawn directly from Greece, but was derived through the Moors, Arabs, and Jews of Spain. Thus the knowledge of the ancients, and especially of the Greeks, disappeared almost entirely from Italy and Europe, while the Roman or Latin church, the nurse of those times, on account of her hostility to the Eastern or Greek church, was inimical to any intellectual intercourse with the East and Byzantium, where the study and the knowledge of the ancients was continued. But the Greeks being expelled from Constantinople by the Mohammedans at the end of the 15th century, brought with them, to western Europe, the knowledge of the ancients, and for this reason the subsequent epoch is called that of the revival of science and learning. The ancients were now taken as models in poetry, art, and literature generally. Chroniclers were now supplanted by historians; the authority of the few who mastered classical learning, was strengthened and extended. Italy possessing already a literature of her own—Dante having admired but not imitated Virgil, either in con-

ception or form, as the Mantuan did in regard to Homer—Italy, in poetry and art, maintained her individuality. The Italian mind preserved its own independent course, and although influenced by the congenial Greeks, did not become slavishly imitative. Tasso and Ariosto were not imitators. Spain was also not much influenced by the classic taste; but beyond the Alps and the Pyrenees, its influence was powerful. What was accomplished in that epoch, in art or literature, began to be considered as barbarian. Imitation of the ancients was the watchword. In England, however, Shakespeare in the drama, but above all, Bacon shaking and overthrowing the authority of scholasticism and of Aristotle, put down the blind submission to the precepts and rules of the past, and established the authority of individual observation, experience, and thought, thus inaugurating the rights and claims of the present over the past. The 17th century marks the climax of the worship of the ancients, and the beginning of a reaction. In France, the literary contest was carried on with great animosity under the reign of Louis XIV. The surviving protégé of the Cardinal Richelieu, who himself had pretensions to literary fame, sounded the charge against slavish obedience to the literary authority of the ancients, and Corneille, contemporary of Richelieu, in his celebrated tragedy of the Cid, took an independent course, while Boileau and Racine defended the classical models and their paramount authority. In Germany, Thomasius, professor of law at Leipsic, at the end of the 17th century, opposed the blind submission to the ancients, and was the first to lecture and write learnedly in the vernacular. Then followed, in the next century, the powerful, luminous, and, in many respects, hitherto unsurpassed development of German literature. In England, Shakespeare was almost forgotten, and for a time the worship of the classics to a great degree restored. Bacon's principles, however, exerted a certain degree of influence through several of his disciples and continuators. The struggle between the authority of the classics and the rights of individuality, was renewed in France, after the fall of the Napoleonic empire, which was essentially classical in literature and art, as was, likewise, the epoch of the revolution. In this new struggle, the parties were known as classicists and romanticists. It related not only to the worship of Greek and Roman models, but to that of the native literature of the epoch of Louis XIV., and extended also over the fields of history and philosophy. In the development of the human mind, the first investigators and originators of knowledge who laid down the foundations and rudiments of science and art, however rude these may be, break through the greatest difficulties, and smooth the path for their successors. In justice, therefore, they ought to be regarded with deference and gratitude. Each period in the past has left after it a luminous record, has developed and brought to eminence at least

one of the multiform manifestations of the mind. If the Greeks remain unsurpassed in plastic harmony, in luminous and symmetrical combinations of proportions in architecture, statuary, and style; if Aristotle was the founder of logic, they still owed to the East all their knowledge in the sphere of transcendent speculation, embracing the spiritual and material world, and ascending to the first principle or cause of creation. In philosophical appreciation, the cardinal difference between ancient and modern times, seemingly consists not in an absolute or virtual superiority of the one above the other, but in various tendencies, and in the variety of outward and formal manifestations. It consists, likewise, in the fact, that science and knowledge, among the ancients, were systematically limited, circumscribed to chosen castes, as in India, Assyria, Iran, or Egypt, were not cared for, or were not accessible to the many, as in Greece and Rome, during and immediately after the mediæval epoch; while the tendency of modern times is to generalize knowledge, to spread it to the utmost among the masses.

ANCIILLON, DAVID, a French Protestant divine, born at Metz, in 1617, and died at Berlin in 1692. He achieved great fame in France as a pulpit orator and theologian, but the repeal of the edict of Nantes forced him to emigrate. He went to Berlin, where he was received with great distinction and cordiality by the Prussian government, and appointed as pastor. His polemical writings are scholarly productions, conceived in a spirit of conciliation which made him popular even with his opponents. His character was marked by great moral beauty. —CHARLES, the son of the preceding, was born at Metz, in 1659, and died at Berlin in 1715. He graduated as lawyer, and was sent by the Huguenots of Metz as deputy to Louis XIV., when the repeal of the edict of Nantes drove him away from France, and he settled at Berlin, where he was placed at the head of the French colony. On occasion of a diplomatic mission to Switzerland he entered, for some time, into the service of the Margrave of Baden-Durlach, but subsequently returned to Berlin, where he was appointed historiographer of the king, and inspector of the French school. He left many writings in connection with the edict of Nantes and the French colony at Berlin, also a life of Solyman III., and a treatise on eunuchs.

ANCIILLON, JEAN PIERRE FREDERIC, a Prussian historian and statesman, born at Berlin, April 30, 1767, died in the same city, April 19, 1837. He was of the above distinguished French Protestant family who had established themselves in Prussia in consequence of the revocation of the edict of Nantes. Having selected the ecclesiastical profession, he prepared himself for it by pursuing most thoroughly the study of history and philosophy; and when he had finished his course at the university of Geneva, was appointed pastor of a French church in Berlin, and professor of history in the

military academy. In 1798 he travelled through Switzerland and France, and upon his return took an active part in the literary discussions of the time as a contributor for several journals. In 1801 he prepared for the press his "Miscellanies of Literature and Philosophy," which first revealed the maturity of his reflection upon the problems of metaphysics. Two years later followed his most important historical work, a "Picture of the Changes of the Political Systems of Europe since the 15th Century." He owed to the fame of this history his election to the academy of sciences, and his appointment as royal historiographer. In 1810 he renounced his duties as pastor and professor to undertake the education of the prince royal of Prussia; and the grave aspect of public affairs now developed rapidly in him a political capacity, the fruit of long and patient studies. He became counsellor of state, and entered the ministry of foreign affairs, then under the immediate control of Hardenberg. He took an active part in the new council of state created in 1817, and was at the head of the most important section of the department for foreign affairs when the revolution of July, 1830, broke out. Soon after he was intrusted with the entire direction of that department, and received the title of minister of state, an office which he retained till his death. The principles both of the politics and philosophy of Ancillon are suggested by the title of one of his books, "The Mediation between Extremes of Opinion." His temperate and prudent administration contributed largely to preserving the peace of Europe in spite of numerous fermenting and troubling elements, and to this end he bore a part in the conferences assembled at Vienna in 1814. Amid the opposite and violent tendencies of the time he was reproached with equal justice as being a conservative and a progressive. The philosophical writings of Ancillon are numerous, and are marked by his favorite exercise of mediating between contraries. He was too eclectic to be either the founder or champion of any definite and consistent system, but in adopting sentiment and faith as the ground of certainty, he has affinity with the German school of Jacobi. His great merit is what may be termed his psychological sense, his insight into the elements and phases of character, and in various writings he has developed in a clear and elegant style interesting questions of psychology, morals, æsthetics, and politics.

ANOKARSTROEM, JOHANN JAKOB, the assassin of the king of Sweden, Gustavus III., was born in 1761, and executed at Stockholm, April 29, 1792. The son of a superior officer, he became a page at the court of Gustavus, and subsequently ensign in the royal body-guard. But in 1788 he withdrew from military service, married, and settled quietly down into country life. His discontented disposition, however, could not long rest satisfied with the even current of domestic and private life. At the same time he was a man of strong political prejudices, and

as a partisan of the old aristocratic party he vehemently opposed the measures of the king, which tended to play into the hands of the liberals by weakening the power of the senate and the nobility. He became implicated in the seditious movements of the island of Gothland, and was tried for treason in 1790, but acquitted for want of evidence. This trial, which was conducted with great severity, roused still more the angry passions of the combustible man, and fanned the embers of political resentment into fiery resolves of vengeance. In 1790, in conjunction with General Pechlin, Count Horn, Count Ribbing, Baron Bjelke, Colonel Liljehorn, and other discontented nobles, the death of the king was determined upon, and on casting lots who should execute the deed, the choice fell upon Anckarstroem, who consummated it in the night of March 15, 1792, when, at a *bal masqué*, he shot the king, who died almost upon the spot. The pistol which was found in the hall, became conclusive evidence against Anckarstroem, who was at once arrested, tried, convicted, and sentenced, first to be ignominiously flogged, and then to die on the scaffold. He met his fate with great firmness, exulting to the last in the righteousness of his course, and all efforts to elicit from him the name of his accomplices proved in vain. The dramatical element of this occurrence, a king assassinated by a nobleman of his court, in the midst of the fashionable revels of a *bal masqué*, was used by Scribe in 1833, in his play of Gustave III., which subsequently was put into music by Auber, the French composer, and this opera, *Gustave ou le Bal Masqué*, enjoys to this day much popularity upon the European stage, not so much by any display of great musical genius as by the dramatic interest hovering around the murderous deed of Anckarstroem.

ANCKARSWARD, KARL HENRIK, a Swedish statesman, born at Sweaborg in 1782. He first chose the career of arms, and in 1808 served in the Norwegian war as aide-de-camp of Count Armfelt. The next year he favored the revolutionary movement in Sweden, became a leader in the successful insurrection, and was rewarded by promotion to the rank of colonel. At the outbreak of the war with France in 1812, he accompanied the prince royal as aide-de-camp into Germany, and there wrote a letter in which he wholly disapproved of the conduct of Sweden in aiding the allied powers in their struggle against France. He thus drew upon himself the displeasure of the prince royal, in obedience to whose mandate, having resigned his commission, he broke his sword, and retired to private and rural life in Carlsund. In 1817 he was elected a member of the diet, and opposed the measures of the government, at first under the banner of Count Schwerin, but soon became himself the leader of the national opposition. He was admirably fitted to play this part by his commanding figure, and impetuous and ready eloquence, but he lacked repose of character, and habits of mature reflection,

and his attacks upon the royal party were as indiscriminate as they were zealous. Yet in the midst of constant parliamentary defeats, he always exercised a great influence upon the diet, and a large minority of the members always voted with him. His political caprices sometimes called forth reproaches from all his friends, and in 1829, not having obtained the presidency of the constitutional committee, he passed suddenly into retirement, declaring that further resistance to absolute power was hopeless, and published a work entitled "Political Principles," in defence of his acts and opinions. In 1839 he was called to the presidency of the constitutional committee, proposed measures which were rejected as too aristocratic, subsequently advanced an ultra democratic scheme which only resulted in electing him to the diet, where he devised several other plans for restraining the royal prerogative, all of which alike failed.

ANCKWITZ, NICOLAS, count, a Polish diplomatist, born in the middle of the 18th century, executed in 1794, notorious for his vices but eminent for his abilities, which raised him to the post of ambassador at Copenhagen, and of nuncio of Cracow. In the opening and the debates of the diet of Grodno, he played a prominent part, and when after the second division of Poland a treaty was concluded with Russia, he was deputed to sign it on behalf of Poland, July 23, 1793. This treaty sealed the fate of Poland, and kindled the revolution of 1794, which became hallowed by the heroism of Kosciuszko. As soon as the fatal treaty was signed, a salary of \$18,000 was paid to Anckwitz, by the Russian government, and the appointment of president of the council conferred upon him. When these facts transpired, confirming the worst suspicions of Anckwitz's venality, the rage of the people knew no bounds. On April 18, 1794, soon after the breaking out of the revolution, he was accused of treachery, and his correspondence seized, which established the evidence of his guilt. He was doomed to death on the gallows in front of the town-hall, and his body consigned to the burial-ground reserved for felons.

ANCOBER, or АНКОБЪ, a town of Abyssinia, located on a mountain, at an elevation of 8,198 feet. It consists of thatched huts, surrounded by stockades. It has a royal residence, and several edifices of worship.

ANCONA, an important maritime city of the papal states, situated on the Adriatic, 122 miles N. E. of Rome; population, 36,000. It is the seat of a bishopric, of a civil tribunal, and of a court of appeal; is governed by a delegate, who is also a prelate of the Roman church; has a good harbor, formed in part by a mole constructed by Trajan; has been a free port since 1732, as regards trade; and extends also to its inhabitants entire freedom of religious opinions. Next to Venice, it is the most prosperous city on the Adriatic. The inhabitants are in part Jews, Greeks, and Mohammedans, as well as Chris-

tians. The city is built amphitheatre wise, upon the sides of two adjoining hills. The upper portion is called the *Citta Vecchia*, the lower, the *Citta Nuova*. Ancona has a citadel, a college, a cathedral, 10 other churches, 2 hospitals, 16 convents, and a lazaretto. On the mole is found a white marble triumphal arch, of the emperor Trajan, also an arch in honor of Pope Benedict XIV. The cathedral stands upon the site of an ancient temple of Venus. The palace of the delegate, the town-house, merchants' hall, and the fortifications, are the other most notable objects. The commerce of Ancona is very considerable. In 1846, the exports amounted to \$2,142,200, the imports to \$4,746,000; 1,455 vessels entered the port the same year. The chief articles of export are wool, silks, skins, sail-cloth, grain, tow, alum, sulphur, fruit, and Venetian soap. It is the entrepot for European goods for the Levant, and a chief point for steam communication between the Adriatic and the Levant. Its manufactures, which are chiefly in the hands of the Jews, consist of wax, tallow, silk hats, and paper. The women of Ancona are said to be remarkably handsome. Strabo states that Ancona was founded in the time of Dionysius by a colony of Syracusans, about 400 B. C. The Romans gained possession B. C. 268. The Lombards occupied it A. D. 592. In 839 the Mussulmans sacked it. It was an independent republic till 1532, when it was surrendered to the pope. It was taken by the French in 1798, restored to the pope in 1814, again taken by the French in 1832, and again surrendered in 1838.

ANCON SIN SALIDA, a deep and narrow bay, which stretches across the southern extremity of the Andes from the Pacific. Its form is that of a winding channel with many branches, penetrating among the high and rugged mountains. The steep and precipitous sides of these rise to the regions of perpetual snow, from which avalanches and glaciers descend into the waters beneath. The length of the passage is over 40 miles, and its width from 1 to 4 miles. It terminates towards the east in a basin 20 miles long and 10 miles wide, called Kirkewater. Several lateral branches run for 80 miles among the mountains.

ANORE, MARSHAL D', whose real name was CONCINO CONCINI, was born at Florence in the latter part of the 16th century, and died April 24, 1617, at Paris, by assassination. His grandfather was a minister of the grand-duke Cosmo; his father was a simple notary, who does not seem to have been able to restrain the bad passions of his son. After having led a vagabond life, and been in Rome for some time, he happened to return to Florence when the household of Maria de' Medici was being formed, on occasion of her marriage with Henry IV. of France. Concini succeeded in worming himself into the service of the new queen, and at the same time into the good favor of her confidant and chambermaid, Leonora Dori, commonly called Galigai, who readily consented to

become his wife. This marriage, strengthening as it did the connection between him and the queen, became the stepping-stone to Concini's advancement. With the graceful officiousness of the courtier, he combined the abject servility of the lacquey, and with the dazzling social qualities of the accomplished man of the world, the low, grovelling nature of the intriguing spy. Such a character was just the one requisite to become the mediator between Henry IV. and his queen, and at the same time to make himself generally acceptable to the giddy mob of courtiers. His influence grew from day to day, and after the death of the king there were no bounds to his ambition, confiding as he did in the fascination which he and his brilliant wife exercised over the spirit of Maria de Medici. At this period of prosperity, he made the acquisition of the marquise of Ancre, and the dignity of marshal was conferred upon him, which was a pure title of courtesy, considering that he had never smelt powder. Presently he became the ruling minister of France, and among the crowds of courtiers and parasites who slavishly bowed before the successful adventurer, was no less a personage than the future Cardinal Richelieu, at that time an obscure bishop, not known to fame. The Chevalier de Luynes also paid homage in the most humble fashion to the marshal, who, inflated by so much prosperity, displayed the most revolting arrogance, increased his fortune at the expense of the people, put his own creatures in the place of the old and approved ministers of the late king, went so far as to banish the royal princes from court, and did not hesitate to give umbrage to the youthful Louis XIII., the son and successor of Henry IV. In the mean time, the Chevalier de Luynes had gained the same power over the mind of Louis XIII., which the marshal possessed over that of the queen regent. Louis XIII., yielding to the influence of the chevalier, and to his own feelings of resentment against the marshal, determined upon his ruin, and on April 24, 1617, as the marshal was entering the Louvre, he was arrested by Baron de Vitry, at the request of the king, and shot dead upon the spot. The news of his death created the most intense excitement among the populace of Paris, who tore his corpse to pieces, threw the bowels into the Seine, and burnt the mangled remains in front of the monument of Henry IV. The popular thirst for vengeance knew no bounds, and extended to his widow, who was convicted of witchcraft, beheaded, and afterward burnt upon the Place de Grève. His immense fortune was sequestered, and given to the Chevalier de Luynes, his staff of Marshal of France was conferred upon the same Baron Vitry who was instrumental in causing his death, while his infant child, a boy of 10 years, was outlawed.

ANORUM, a parish and village of Scotland, situated on the Teviot, in Roxburgh. It was the scene of the battle of Ancrum Moors, where the English were defeated by the Scotch (1544).

ANOUS MARCIUS, the 4th king of Rome, is said to have been the grandson of Numa, and to have reigned from 688 B. C. to 614 B. C. He revived the religious ceremonies which his grandfather had established, but which had fallen into desuetude. He waged a successful war against the Latins, took many of their cities, and transported their inhabitants to Rome. He founded a colony at Ostia, erected a fortress on the Janiculum, and caused several other works to be constructed, which added to the strength and security of his capital.

ANOYRA, an ancient city of Galatia, said to have been built by Midas, and to have derived its name from an anchor found on the place where it stood. This city was very much enlarged by Augustus, and subsequently became the capital of Galatia. It was so well situated for inland traffic that it was used as a depot in Roman times for the productions of the East. The modern name of Ancyra is Angora. (See ANGORA.)

ANDALA, RUARD, a Dutch philosopher and theologian, born in 1665, at Andlahuizen in Friesland, died Sept. 12, 1727. Originally a country clergyman, he was made professor of philosophy at the university of Franeker. As a thinker he is without originality, and has no value in the history of science; but he was one of the most zealous defenders, and perhaps also one of the most enlightened interpreters in his time of the Cartesian philosophy. He wrote *Dissertationes Academicæ in Philosophiam*, and a *Syntagma theologicum-physico-metaphysicum*, in which he attacked the ideas of those of his colleagues who professed Aristotelianism. In 1712, he changed his chair for that of theology, and strove on the principles of his chosen philosophy to overthrow Spinozism, in a work entitled *Cartesius versus Spinozismi eversor*. He wrote also controversial dissertations against the metaphysics of Leibnitz and the ethics of Goulincx, and a commentary upon the Apocalypse of St. John, which has been highly esteemed among Dutch theologians. He treated also the question of the existence of witches and enchantments.

ANDALUSIA (formerly VANDALUSIA, from the Vandals, who settled there in the 5th century), the most southern division of Spain; lying between lat. 36° and 38° 38' N. and long. 1° 37' and 7° 24' W. Length from E. to W. about 300 miles; greatest breadth about 150 miles; area 27,158 square miles; population (1849), 2,745,858. It is bounded on the N. by Estremadura and La Mancha; E. by Murcia; W. by Portugal; S. W. by the Atlantic, and S. and S. E. by the straits of Gibraltar and the Mediterranean. Its chief river is the Guadalquivir; its mountain ranges, the Sierra Nevada and Sierra Morena. Mulahacen, a peak of the former, is 11,678 feet high. The climate is mild, the soil generally fertile, the country level, where not mountainous. The vegetation partakes both of the European and African character. In the south cotton and sugar-cane are cultivated. These, with grain, olives, wines,

figs, silk, and cochineal, wool, and a fine breed of horses, are its chief products. Gold, silver, copper, iron, lead, antimony, sulphur, coal, mercury, vitriol, serpentine marble, and alabaster, are found. The mines are, however, much neglected. The country is parcelled out into vast estates, belonging to the crown, the clergy, and large landed proprietors. Agriculture is in a very backward state. A large part of the plains is devoted to pasturage. The manufactures, once important, have greatly declined. The chief are those of woollens, silk, and leather. The chief cities are Seville, Cadiz, Cordova, Granada, Jaen, Malaga, Almeria, and Huelva; each named from a province of which it is the capital. The chief ports are Cadiz and Gibraltar. The Andalusians are a mixed race, descended from Africans, Carthaginians, Romans, Goths, Vandals, and Moors. Physically, they retain many of the peculiarities of the last-named people. They are animated, and naturally intelligent. They are Catholics in religion. Trajan, the Senecas, Silius Italicus, and Murillo, the painter, were natives of Andalusia. It has also produced some eminent poets and authors.

ANDAMAN ISLANDS, a group of small islands in the east part of the bay of Bengal, between 10° 30' and 13° 40' N. lat. and 92° 50' E. long., containing 3,000 inhabitants, who are quite barbarous, of diminutive stature, very slender limbs, and jet black. Their habitations exhibit very little ingenuity. They have no utensils which will resist fire, and they cannot be induced to confer with strangers. The language of the people has not the least affinity with any other known.

ANDANTE, an Italian word, signifying literally, going, or proceeding forward naturally, which is employed by musicians to indicate a degree of time, midway between *allegro* and *largo*, or a composition of a gentle, calm, and peaceful character.

ANDAYA, or ANDAIA, a river in Brazil, rises in the Sierra Matta Gorda, and falls into the Francisco at lat. 18° 10' S., its whole course being about 120 miles.

ANDERAB, also written INDERAB, and INDERABA, is a town in central Asia, about 85 miles N. N. E. of Cabool. It is a populous place, and contains the storehouses in which is kept the silver brought from Hariana and Bendjehir.

ANDERLONI, PIETRO, an Italian engraver, born at St. Euphemia, a suburb of Brescia, Oct. 12, 1784, died at Milan, Oct. 13, 1849. At the age of 20 years, after preparatory studies under his father, who was himself an engraver, he entered the school of Longhi at Milan, in which he remained 9 years, and of which he subsequently became director. He was at first doubtful of his talent, and hesitated long in producing those works which proclaimed him one of the first masters of his art. His most admired pieces are portraits of Da Vinci, Canova, and Peter the Great, his "Moses," and "Daughter of Jethro," copied after Poussin; his "Virgin" after Raphael, and his master-

piece, the "Woman taken in Adultery," after Titian.—**FAUSTINO**, brother of the preceding, an engraver of Pavia, born in 1774, is the author of a portrait of Herder, a Magdalen after Correggio, and a "Holy Family" after Poussin.

ANDERSEN, HANS CHRISTIAN, Danish poet and novelist, was born at Odensee, April 2, 1805. His father, a shoemaker in needy circumstances, seems to have been superior to his class in literary taste and acquirements, and was familiar with Holberg's comedies, and the "Arabian Nights," which he found little difficulty in teaching his son to appreciate. In this quaint old town young Andersen grew up, an imaginative boy, easily impressible, and superstitious to an unusual degree. His education, chiefly acquired at a charity school, was limited to a bare knowledge of reading and writing, but thanks to an unusually retentive memory, and an ambition to learn, he was able to read with tolerable facility, and could repeat a number of national ballads, and fragments of poetry and plays. At 9 years of age he lost his father, whose influence had not been lost upon him, and shortly afterward gained an entrance into the house of the widow of a clergyman, where he was engaged to read aloud to the family. Some tragedies having been put into his hands, with boyish impulsiveness he at once determined to become a dramatist, and actually wrote some tragedies, full of horrors, and expressed in whimsically stilted language, which excited such a storm of ridicule that his sensitive spirit was deeply wounded. After a short sojourn in a manufactory, where he was ill-treated by the workmen whom he had amused by singing and reciting to them passages from Holberg, he returned home, and for a while led an inactive life, devoting himself to singing, and devouring every scrap of literature which fell in his way. He possessed an agreeable voice, and as he had long shown a taste for dramatic literature and the stage, which he lost no opportunity of gratifying, his mother was advised to send him to the theatre. She determined, however, to make a tailor of him, but before his apprenticeship commenced he obtained permission to go to Copenhagen and witness the performance of a play. On Sept. 5, 1819, Andersen found himself in Copenhagen with 10 rix-dollars in his pocket, and, after gratifying the desire which had brought him there, sought to get an engagement at the theatre in some humble capacity. He was rejected on account of his awkwardness and ignorance, and was obliged to apply to a joiner for employment. He did not remain long with him, and again found himself a stranger in a large city, without friends or money, when he suddenly remembered that no one had heard his voice. He presented himself to Professor Siboni, director of the royal conservatory, who received him with kindness, and recognizing his talents, caused him to be instructed as a singer for the stage. At the end of half a year his voice, which was in the transition state, failed him,

and his teacher advised him to return home and learn a trade. The boy's ambition would not allow him to listen to this suggestion, and he applied for assistance to the poet Guldberg, the brother of a former patron in Odensee, who proved a kind friend. For a year or two he struggled on, either as a member of the theatrical corps, or engaged in his studies, surmounting difficulties which would have disheartened most men, with a singularly child-like trust in Providence not unmingled with superstition. During this period he wrote some tragedies which excited the attention of Ohlenschläger, and others, but which he was unable to have produced upon the stage. At this moment Councillor Collin, a benevolent and clear-sighted man, became director of the theatre, and perceiving the genius that slumbered in the young man procured his admission, free of expense, into one of the government schools. This was the turning point in Andersen's life; he embarked in this new career with enthusiasm, was admitted into the royal college of Copenhagen, and while completing his studies there, produced in 1833 his first work in print, entitled "A Journey on foot to Amack," which was received with extraordinary favor, and gained him the acquaintance of some of the most influential people in Copenhagen. Some volumes of poems which succeeded, increased his reputation. Ohlenschläger, Ingemann, and other friends having procured a royal stipend to enable him to travel, in 1838 he visited Italy, a country whose impressions he has recorded in his novel, the "Improvisatore," which he dedicated with every mark of affection to his friend Collin. It has been translated into almost every European language, and stands unrivalled as a picture of scenery and manners in southern Europe. His next novel, "O. T.," in contrast to this describes life in the north, and "Only a Fiddler" some of the most striking scenes in his early struggles. He has written, beside these, "Fairy Tales," "Picture Book without Pictures," "Travels in the Hartz Mountains," "A Poet's Bazaar," "Ahasuerus," "New Fairy Tales," and some volumes of verse and dramas. In 1846, he visited England, where he made many friends, and subsequently wrote one of his longest works, the "Two Baronesses," in the English language. His works reflect his own kindly and open disposition, and are marked by humor, invention, and a poet's enthusiasm. His fairy tales for children are the most charming things of the kind conceivable, and have been read with delight in every modern language. In person Andersen is tall and ungainly, and somewhat embarrassed in manner, but his countenance is open and honest, and his conversation frank and unrestrained. In 1845 he received a royal annuity which places him in comfortable circumstances for the remainder of his life. An edition of Andersen's complete "Works" has been published in 85 vols. 12mo, Leipsic, 1847. Since that time he has

added several new productions to the number. The series of translations from his works by Mary Howitt, has introduced him to a large circle of admirers in England and America.

ANDERSON, I. A north-western district of South Carolina, separated from Georgia by the Savannah river, bounded on the north-east by the Saluda, drained by a number of smaller streams, and having an area of about 800 square miles. The surface is uneven; the soil fertile and well cultivated. In 1850 it produced 820,549 bushels of Indian corn, 120,382 of wheat, 209,067 of oats, 6,670 bales of cotton, and 956,940 pounds of rice. There were 54 churches, 8 newspaper offices, 828 pupils in the public schools, and 898 attending academies and other schools. Anderson was formed by the division of a district formerly called Pendleton. Capital, Anderson. Pop. in 1850, 21,475, of whom 7,514 were slaves. II. A county in the E. central part of Texas, with a rolling surface and a fertile soil. The Trinity river, navigable thus far by steamboats, flows through a rich, well-wooded valley on the W. border of the county, and Neches river touches its eastern boundary. An active emigration has lately been directed to this region. The principal articles of export are wheat, maize, and cotton. In 1850 the county yielded 87,508 bushels of Indian corn, 1,296 of oats, 19,167 of sweet potatoes, 754 bales of cotton, 39,524 pounds of butter, and 1,681 of wool. There were 96 pupils attending schools and academies. Capital, Palestine. Area, 900 sq. miles. Pop. 2,884, of whom 600 are slaves. III. A north-eastern county of Tennessee, containing about 600 square miles, traversed by Clinch and Powell's rivers. On its north-western border is Cumberland mountain, and on the south-east rises Chestnut Ridge, between which two ranges lies a deep fertile valley, well watered and abundantly stocked with timber. Stone coal is found in various parts of the county. At Estabrook are salt and sulphur springs. In 1850 the productions were 317,724 bushels of Indian corn, 52,708 of oats, 61,755 pounds of butter, and 10,191 of wool. There were 9 churches and 1,847 pupils attending public schools. Capital, Clinton. Pop. in 1850, 6,988, of whom 506 are slaves. IV. A county in the N. central part of Kentucky, bounded on the E. by the Kentucky river, and intersected by Salt river. The surface in some parts is level; in others, gently undulating. The soil is generally productive. Grain, hemp, grass, and live stock, are the staples. The productions in 1850 were 388,595 bushels of Indian corn, 18,258 of wheat, 65,041 of oats, and 55 tons of hemp. There were 18 churches and 332 pupils in the public schools. The county was named in honor of Richard C. Anderson, former member of congress from Kentucky. Capital, Lawrenceburg. Area, 300 square miles. Pop. 6,260, of whom 1,282 are slaves. A railroad passes through this county from Frankfort to Harrodsburg.

ANDERSON, ADAM, a Scotchman, born

1692, died 1765. He was clerk in the South sea house, and became chief clerk of the stock and new annuities. He wrote "A Historical and Chronological Deduction of Trade and Commerce," 2 vols. fol. 1762. This was enlarged by himself, and after his death was republished by David McPherson, who rewrote the historical part. Mr. Anderson was one of the trustees named in the charter for the establishment of the colony of Georgia in 1732.

ANDERSON, ALEXANDER, an eminent mathematician, born in Aberdeen, Scotland, at about the close of the 16th century. The date of his death, as well as most of his history, is unknown, but early in the 17th century we find him established at Paris as a teacher or professor of mathematics. His works are now very scarce. They are, *Supplementum Apollonii Redivivi*; *Arithmetica: Pro Zeteticis Apolloniani problematis a se jam pridem edito in supplemento Apollonii Redivivi*; an edition of a portion of the works of the eminent French mathematician Vieta, and one or two others. His style is neat and elegant, and distinguished by that clearness so necessary in a mathematical work.

ANDERSON, ALEXANDER, an English naturalist, died in 1813. He visited the Caribbean islands, published some descriptions of their trees, and communicated to the Royal Society of London an "Account of a bituminous Lake in the Island of Trinidad." He afterward directed for several years the botanical garden on the island of St. Vincent, and published in 1798 a volume containing descriptions of the plants there cultivated, in which were found an account of the bread-tree (*artocarpus incisa*), and interesting details concerning the culture of the clove-tree and cinnamon-tree. For this work he received a silver medal from the society of the arts, and for two subsequent works, one of which was upon the introduction of the clove-tree into the East Indies, and was accompanied with plates, he received from the same society a gold medal. Of the life of Anderson, little is known except by his writings.

ANDERSON, SIR EDMUND, an English judge, born about the year 1540, at Broughton, or Flixborough (it is uncertain which), in Lincolnshire, died Aug. 1, 1605. He was educated at Lincoln college, Oxford, afterward studied law, and in 1582 was made chief justice of the common pleas, which office he held until his death. He was an able and learned judge, and especially distinguished himself by his zeal for the established church, and his harshness toward dissenters. Two works of his have been published, and are esteemed of great authority. They are, "Reports of Cases argued and adjudged in the time of Queen Elizabeth, in the Common Bench," fol., London, 1644; and "Resolutions and Judgments on the Cases and Matters agitated in all the Courts of Westminster, in the latter end of the Reign of Queen Elizabeth," 4to, London, 1655.

ANDERSON, GEORGE, a Danish traveller,

born at Tondern, in the duchy of Sleswick, at about the commencement of the 17th century, died about 1675. In 1644 he sailed from the Netherlands to the Cape of Good Hope, Java, and Sumatra, and, before his return to Europe in 1650, visited Arabia, Persia, India, China, Japan Tartary, Mesopotamia, Syria, and Palestine. After his return, he entered the service of the duke of Holstein-Gottorp, to whom he often related interesting tales of his travels. He was not an educated man, and was unwilling to draw up any account of his adventures, but the duke ordered his narrations to be committed to writing, and the work, after having been revised by Anderson himself, was published in German, at Sleswick, fol. 1669.

ANDERSON, ISAAC, D. D., an American clergyman, and pioneer preacher in the west, born in Rockbridge county, Virginia, March 26, 1780, died in Maryville, Tennessee, Jan. 28, 1857. He early indicated superior intellectual abilities, making himself a favorite and companion of boys older than himself, and when but 7 years of age, had read the easier Latin authors. At the age of 14, he entered Liberty Hall academy, subsequently and better known as Washington college, and there laid the foundation of his future learning. His method of study did not proceed merely from a scholarly habit and profession, but was rather suggested by the inquiries of his own intellect, and by a desire to sound the depths of every subject which came to occupy his mind. Hence he was a student not more during his school-days, than amid the exhausting toils of the half century which succeeded them. After leaving the academy, he hesitated for 2 years whether to choose the clerical or the legal profession. More than once he determined to study law, but the final result of his meditation was a decision to devote himself to the ministry. He immediately commenced his theological studies under Rev. Samuel Brown, a Presbyterian divine, whose metaphysical acuteness gained for him the title of the Edwards of Virginia. At this time he removed with his father's family to Union, Tennessee, continued his studies there, and puzzled his preceptors, by adopting some of the tenets of what was called the new divinity. After much discussion and thought he however accepted substantially the doctrines of the old orthodoxy. He received in 1802 from the Union Presbytery a license to preach, and during his first settlement of 9 years derived his income chiefly from his farm and from school-teaching. In addition, too, to all his regular labors, inspired by the example of Whitefield, whose life he had lately read, he made missionary tours through the adjacent counties, preaching now from the stump of a tree, now in a rude log-cabin, to motley and untaught crowds, who assembled with their guns, and crouched on the ground or sat on horseback to listen to him. In 1811 he was invited to be pastor of a church in Maryville, and began to turn his attention particularly to per-

suading young men to enter the ministry, and meet the wants of the spiritual desolation widespread around him. After in vain seeking help from the missionary societies, he determined, unassisted, to establish a school for theological education. He gathered a class of 5 young men, established a boarding-house, took upon himself the duties of instruction, and with great energy and self-denial, amid opposition and discouragements, succeeded in founding the Western theological seminary, which has since become an important institution. He remained in Maryville till his death, fulfilling the various duties of pastor, missionary, and teacher.

ANDERSON, JAMES, a Scottish antiquary and lawyer, born at Edinburgh, Aug. 5, 1662, died April 3, 1728. In 1705 he published "An Essay showing that the crown of Scotland is Imperial and Independent," in answer to a pamphlet entitled the "Superiority and direct Dominion of the Imperial Crown and Kingdom of England over the Crown and Kingdom of Scotland," which had appeared a short time before. The subject discussed in these tracts excited at that time the greatest interest in Scotland, and Anderson received the thanks of the Scottish parliament, beside a present in money, and a commission to collect and publish such ancient documents illustrative of the national independence as he might deem proper. But the union of the two kingdoms took place shortly afterward and caused much disarrangement in his plans. Not long after this event he removed to London, where he employed himself in literary labors, and in endeavoring to obtain a recognition of his claims on the government, while from 1715 to 1717 he was postmaster-general of Scotland. Although he did not live to put the finishing touch to the book which he had been requested by the Scottish parliament to compile, he was yet able to accomplish a highly useful work in his "Collections relating to the History of Mary, Queen of Scotland," 4 vols. 4to; while his great work appeared after his death, in 1735, under the title of *Selectus Diplomatum et Numismatum Scotiae Thesaurus*, with a preface by Ruddiman, its learned editor.

ANDERSON, JAMES, an eminent Scotch writer on agriculture, political economy, and natural science, born at the village of Hermiston, near Edinburgh, in 1739, died Oct. 15, 1808. While yet in his youth, he lost his parents, and, at the age of 15, assumed the charge of the paternal farm, which had been cultivated by his ancestors for several generations. Thinking a knowledge of chemistry desirable to a farmer, he attended a course of lectures on that science delivered by Dr. Cullen at Edinburgh, and was still very young, when he introduced among the farmers of his neighborhood the two-horse plough without wheels, an implement far more useful than the heavy, lumbering apparatus previously employed. In 1768 he took a lease of a farm of 1,300 acres in

Aberdeenshire, the cultivation of which, until the time of his taking it, had been much neglected. Here he resided for about 20 years, and it was while here that he made his first appearance as an author, contributing to the "Edinburgh Weekly Magazine," in 1771, a series of essays on planting, which were in 1777 collected and published separately by their author, who, from that time until 1803, wrote and published frequently. In 1780 he received from the university of Aberdeen the degree of doctor of laws, and, in 1788, removed to Edinburgh. Having written a pamphlet with regard to the national fisheries, he was employed by the government to make a survey of the Hebrides and the western coasts of Scotland, with a view to the improvement of that branch of industry. In 1791 he established a periodical called the "Bee," which was continued until 1794, and comprises 18 volumes 8vo. This publication was of a literary and scientific character, yet designed especially for the amusement and instruction of the young. Having removed to the neighborhood of London in 1797, he commenced in April, 1799, the publication of a periodical entitled, "Recreations in Agriculture," which continued to appear until March, 1802, and of which the most valuable papers were contributed by its editor. One of them has attracted especial attention, as containing a clear exposition of the theory of rent, afterward set forth by Malthus, West, and Ricardo. For some years previous to his death, Dr. Anderson's constitution was very much broken down in consequence of his severe mental application. His writings are numerous, and have exercised an important influence on the improvement of agriculture in Great Britain and on the popularization of science.

ANDERSON, JOHANN, a German lawyer, linguist, and geographer, born at Hamburg, March 14, 1674, died May 8, 1748. He took the degree of doctor of law at Leyden in 1697, and, after spending some time in travel, established himself as a lawyer in his native city of Hamburg, where, in 1708, he was made syndic, and, in 1732, first burgomaster, holding this latter office until his death. In 1711 he was sent on an embassy to Frederic IV., king of Denmark; in 1713 was the representative of the city of Hamburg at the congress of Utrecht; and, in 1715, a member of an embassy sent to Louis XIV. These offices of trust Anderson filled with great credit, and, at the same time, employed himself in literary and scientific labors. His most important work was published after his death, and was on the natural history of Greenland and Iceland. It has since been translated into Danish and French.

ANDERSON, JOHN, a Scotch professor, and founder of the university which bears his name at Glasgow, born in the parish of Roseneath, Dunbartonshire, in 1726, died Jan. 13, 1796. He received the rudiments of his education at Stirling, where, having lost his father early in life, he lived with an aunt, who had taken

charge of his education. He afterward studied in the university of Glasgow, where, in 1756, he was appointed professor of Oriental languages. Anderson had, however, an ardent love of the exact sciences, and, in 1760, he was placed in the chair of natural philosophy, which position he held until his death. He was a man of benevolent disposition, and very desirous of spreading information on scientific subjects among the poorer classes. For this purpose he established a gratuitous course of lectures, in which he endeavored to bring the truths of science before the minds of his audience in a simple and attractive manner. These lectures were very successful, and were continued until the end of his life. By his will he directed all his property to be applied to the establishment of an educational institution for the education of the poorer classes. Though this institution was conducted at first on a smaller scale than its founder had intended, owing to a deficiency of funds, it has since increased its means of usefulness, and, in 1852, had 15 professors, who delivered lectures on surgery, chemistry, institutes of medicine, practice of medicine, anatomy, medical jurisprudence and police, natural philosophy, mathematics, logic, botany, modern languages, drawing, painting, &c. Dr. Anderson wrote a work entitled "Institutes of Physic," which made its appearance in 1786, and passed through 5 editions in the course of the next 10 years. He is also the author of a work on the Roman antiquities between the Forth and the Clyde, of many articles written for periodicals, and of a paper entitled "Essays upon War and Military Instruments," a subject to which, at one time, he gave a great deal of attention.

ANDERSON, RICHARD C., minister of the United States at the republic of Colombia, in the first part of the present century. He was born in the state of Kentucky, and was for several years a member of congress. He died at Cartagena, July 24, 1826, while on his way to Panama to join the assembly of American nations, to which he had been appointed envoy extraordinary.

ANDERSON, ROBERT, a Scotch physician and man of letters, born at Carnworth in the county of Lanarkshire, Jan. 7, 1750, died at Edinburgh Feb. 20, 1830. He was at first intended for the church, and studied divinity for some time at the university of Edinburgh, but finally relinquished this pursuit for the study of medicine. Having taken the degree of M. D. at the university of St. Andrews, in 1778, he commenced practice as a physician at Alnwick. His tastes, however, led him to literary pursuits, and, in 1784, he left his profession and removed to Edinburgh, where he resided during the remainder of his life. He edited the "Works of the British Poets, with Prefaces Biographical and Critical," published at Edinburgh in 14 volumes, 8vo, also the miscellaneous works of Tobias Smollett, the works of John Moore, M. D., and the poetical works of Robert

Blair, with notices of the lives and writings of each. He also wrote a "Life of Samuel Johnson, LL. D., with Critical Observations on his Works;" Edinburgh, 1815, 8vo. Dr. Anderson was of a benevolent disposition, especially prompt to assist youthful aspirants for literary honors, and an ardent friend of civil and religious liberty.

ANDERSSON, CHARLES JOHN, an African explorer, born in Sweden, in the first part of the present century, died in southern Africa, in 1856. From his earliest youth, he was fond of adventure, and accustomed to field sports, and the pursuits of natural history. One of his parents was English, and in 1849, he visited England, bringing with him a collection of living animals and specimens of natural history, which he had collected during his numerous hunting excursions in his native country. His long-cherished wish had been to travel in Africa, where his love of hunting, natural history, and the exploration of new regions, might all be gratified at the same time, but the expense in-incident to such an undertaking had deterred him, and his object now was to dispose of his collections, and make an excursion to Iceland, where he proposed studying the habits of the rare birds of that northern region. He had already made some arrangements with a view to this end, when he met in London an Englishman named Galton, who was about making a journey to southern Africa, and who asked Andersson to accompany him, at the same time offering to pay all the expenses of the undertaking. Andersson accepted the offer, sailed from England in company with his friend in the early part of 1850, and reached Cape Town June 24 of that year. During the greater part of the next 4 years he was engaged in hunting and exploring expeditions in the wilds of southern Africa, meeting with many startling adventures, and making large contributions to our knowledge of the natural history and geography of those countries, and of the manners and customs of some of the savage tribes who inhabit them. For 2 years of this period he was accompanied by his friend Galton, but during most of the remaining two his only associates were his servants and the savages. He visited the celebrated Lake Ngami, then only recently discovered, penetrating thither by a route previously considered impracticable, and explored for some distance the river Tiogha, which flows into the lake from the north. Returning to England he published a book giving an account of his adventures and discoveries, and remained for some time among civilized men. But his love of adventure and a wild life was still powerful, and it was not long before he returned to the scene of his former exploits. Having visited Lake Ngami and the river Tioghe a second time, he started in company with an Englishman, Mr. Green, to make a journey in an easterly direction from that neighborhood, and had already visited a region never before trodden by the foot of a European,

when, on one of his hunting expeditions, he was attacked and crushed to death by a wounded elephant. Andersson's spirit of perseverance, his courage, and his good humor, fitted him for an excellent traveller, but his passion for hunting led him into needless dangers, and was at last the cause of his untimely death.

ANDES, the range of mountains which extends along the northern and western coasts of South America, from the Caribbean sea to the southern extremity of the continent. With a length of over 4,000 miles in a direction hardly varying from north to south, these mountains pass from the hot climates of the equatorial regions through the southern temperate zone nearly to its extreme verge. At their termination, in lat. 56° S., the climate is indeed more boisterous and wintry than that just over the limit of the frigid zone in the northern hemisphere. In the summer season, at Terra del Fuego, the warmth is insufficient to lift the line of perpetual snow higher than 3,500 or 4,000 feet above the level of the sea, while in Norway for such a climate one must go from 11 to 14 degrees further from the equator. As the Andes, toward the north, spread out into broader masses, and stretch upward to higher elevations, they carry with them through the tropics the cold temperature of their southern termination. At any point on their range, the changes of climate to that of the frozen regions may be encountered as well by ascending the mountains, as following their course into the high latitudes they reach toward the south. They thus give to the inhabitants of the elevated plains of the tropics a cool and salubrious climate. The fruits of the temperate zones here flourish under the equator. But the mountains are not only the regulators of the climate, they are also the great condensers, lifted up into the higher regions of the atmosphere to catch the abundant moisture distilled by the trade winds, and to shed it in copious streams from the eastern slopes on which it is precipitated, eastward toward the Atlantic, feeding the great rivers of the continent, and spreading fertility along their paths. The snow line along the Andes varies in height in different summers, as well as in different parts of the range. Its position, from the few data we have, is in the latitude of Chiloe (41° to 43° S.), 6,000 feet above the level of the sea—the observation made by Darwin, and the officers of the Beagle. In central Chili (lat. 38° S.), according to Gilliss and Darwin, it is 14,500 to 15,000 feet above the sea. In Bolivia (lat. 16° to 18° S.), 17,000 feet, by Pentland's observation; and in the equatorial region, according to Humboldt, it is 15,748 feet high. The perfect distinctness of this line, as also of that which marks the upper termination of the forest growth, which is the commencement of the belt of the lichens and small Alpine plants, is described as a very striking feature in the scenery of these mountains, and is so represented in the large colored sketches which il-

illustrate the great work of Humboldt.—In all their range, the Andes present an almost impassable barrier between the eastern and western sides of the continent. No river penetrates it, though in the southern part of the range its whole width does not exceed 40 miles. The passes across it are wild paths, running along the edge of precipices, and dangerous even to the sure-footed mule. Man has done little to improve them, except in the elevated plains of Peru, where the ancient incas laid out four grand roads from their favorite city of Cuzco, which rival the similar works of the ancient Romans. The least elevation of the summits of these passes is rarely less than twice the height of our own highest mountain peaks. If it does not reach above the extreme limits of vegetation, it is a favorable pass. Frequently they lead through the regions of perpetual snow, and during the winter months are entirely closed. Travellers are carried over them sitting in chairs, which are strapped on the backs of natives. In Chili there are 8 of these passes, south of lat. 32° S., the principal one of which, called the Uspallata, crosses the western of the two ridges at an elevation of 12,454 feet. North of 32° and south of 28°, the mountains spread out to a width of 100 miles, and are divided into 3 great ridges, of which the western one retains the name of Andes. Between this and the middle ridge, called Famatina, is the high valley of Guandacol, from which 5 passes lead to the northern parts of Chili. Over these, merchandises and the products of the mines are transported on the backs of mules. Other passes of interest may be noticed in describing the range of the Andes through the northern states of South America.—The width of the Andes seems to vary with that of the continent. In its southern extremity the mountains hardly spread beyond a width of 40 miles. They are broken up into isolated knobs, which project out into the Antarctic ocean, and form rugged and barren islands. Their western sides, exposed to the prevailing winds, are bare masses of rock. On the east, they are covered with forests of the beech (*fagus betuloides*), which reach up to 1,000 or 1,500 feet above the water, and beyond this succeeds the belt of minute Alpine plants and the peat mosses, which continues to the height of 3,500 or 4,000 feet, where the line of perpetual snow is met. Mount Sarmiento, south of Magdalen sound, reaches the elevation of 6,800 feet, and many other summits range in height from 2,000 to 4,000 feet. Between latitudes 52° 30' and 50° 30' S., the southern termination of the mountains on the continent is marked by the peculiar inlet of Ancon sin Salda, "a passage without an outlet," which penetrates for 40 miles from the Pacific toward the east, branching out into many canals of great length, over which the Andes tower in threatening precipices. Among their high recesses the snow gathers and forms glaciers, which are pushed downward by the

accumulating masses, till they are precipitated into the waters of the Pacific, and become icebergs. The frequent earthquakes hasten their progress, and as they are shaken down into the deep waters, these, disturbed by forces above and below, are thrown with impetuous force against the neighboring walls of rock, repeating the earthquake shock, as the mountains re-echo the tumultuous roar.—For nearly 1,000 miles along the coast of Patagonia, the Andes still skirt the Pacific ocean as they range northward. Their western ridge, indeed, stands out in the waters in the form of broken islands, separated from the main range by an arm of the sea, which is but a deep longitudinal valley. At the southern termination of Chili, in lat. 44° S., the Andes begin to recede from the ocean, and a fertile belt of country intervenes, which in lat. 36° is about 100 miles in width. The mountains, too, have been spread over a base of equal width, and gained in a greater ratio in height than in breadth over the range in the southern part of Patagonia. In central Chili, in lat. 32° 38' S., is the Nevado of Aconcagua, supposed to be the highest peak of the Andes. Measured by Capt. Beechey from its angle of elevation, as seen from Valparaiso, which must be more than 100 miles distant, its height is computed at 23,910 feet.* About the latitude of 33° S., where Gillies and Darwin found the line of perpetual snow had reached the elevation of about 15,000 feet, having risen in 10 degrees of latitude from 6,000 feet, a marked change is observed to take place in the climate, the dry and almost rainless atmosphere of central Chili succeeding to the cold and rainy climate of Patagonia. This change, it is supposed, is suddenly felt on the southern verge of the dry belt in a great increase of temperature, which raises the limit of perpetual snow. But there is a lack of data, as yet, to warrant these generalizations. Tracing the Andes from lat. 28° S., to latitude 22°, we find that the chain still continues to widen till it spreads over a territory of 850 miles from east to west. This is a barren dis-

* Mrs. Somerville speaks of this mountain, in her work on physical geography, as follows: "Although designated as a volcano, a term generally applied in Chili to every elevated and snowy peak, it offers no trace of modern igneous origin. It appears to be composed of a species of porphyry generally found in the centre of the Chilean chain." Darwin, however, in several places in his works, speaks of it as a volcano. After describing the eruption of Osorno, in northern Patagonia, Jan. 19, 1835, he remarks: "I was surprised at hearing afterward that Aconcagua, in Chili, 480 miles northward, was in action on this same night; and still more surprised to hear that the great eruption of Cosequina (2,700 miles north of Aconcagua), accompanied by an earthquake felt over 1,000 miles, also occurred within 6 hours of this same time. This coincidence is the more remarkable, as Cosequina had been dormant for 26 years, and Aconcagua most rarely shows any signs of action." In the Penny Cyclopædia, Aconcagua is described as the highest known volcano in the world, and probably the highest summit of the Andes, rising 23,200 feet above the sea. In the article "Chili," of the "Encyclopædia Britannica," it is stated to be "generally considered as a volcano, but recent observation has ascertained this not to be the case." It is possible that the discrepancy in the accounts may be owing to the mountain being confounded with the volcano Rancagua, which is also visible from Valparaiso toward the S.E. This volcano is in almost incessant action.

trict, called the Despoblado, or uninhabited. From its western borders to the Pacific, a width of 100 miles, the country is similarly desolate. This is called the desert of Atacama. It is an elevated tract of 1,500 to 2,000 feet high to the very coast, and may be regarded as a spur of the Andes sent out in this direction. Vast plains and hills of dry sand spread over the whole country, everywhere, except on the steep eastern slopes of the hills, destitute alike of moisture and of vegetation, but sprinkled with incrustations of nitrate and sulphate of soda, and of common salt. The country bordering the Despoblado on the east is made up mostly of elevated rocky plains, which when above the level of the growth of trees are called *paramos*. From this region north into Bolivia and Peru, the mountain region of the Andes continues to increase in width. They spread eastward in great chains into the interior of the continent, and westward they bend round with the coast, which they nearly approach. The mountains along the Pacific are about 2,000 feet high, sandy and barren. In a day's journey into the interior from the port of Iquique in Peru, not a sign of vegetation is met with, but lichens strewed loosely upon the sand with nothing to attach them to the surface, nor is the solitude of the desert interrupted by any living thing, bird, beast, or insect, save the occasional train of cargo mules between the coast and the nitrate of soda mines, and the vultures, that hover over them, or settle down to feed upon their prey broken down and left behind. The salts of soda (common salt, and the nitrate with some sulphate) are intermixed with the sand, forming hard incrustations, which, though highly attractive of moisture, find in this dry climate not enough of it to cause them to deliquesce. Where worked, at a distance of about 40 miles from the coast, they are in a hard stratum, between 2 and 8 feet thick, found just beneath the surface, and extending along the margin of a great basin or plain for 150 miles.—To the north of this region, where the Andes spread out to the width of more than 500 miles, and include between their ridges broad valleys elevated thousands of feet above the level of the sea, is the territory of the ancient incas of Peru—a territory made famous by the romantic and chivalrous exploits of the Pizarros and Almagros, and now become classic by the works of the historian, Prescott. Though under the burning sun of the tropics, this region enjoys the climate and fruits of the temperate zone; and its ancient inhabitants breathing only the invigorating air of the mountains, seemed, like the vegetable kingdom, to have escaped the influence of the latitude, and assumed the qualities of nations living under a colder sky. Through the range of their mountain valleys, extending from Potosi in Bolivia, in a north-westerly direction, taking in the lakes of Aulagas and Titicaca, and the river Desaguadero, which connects them, and reaching beyond

their capital, Cuzco, are still to be found the ruins of their works, the evidences of their high degree of civilization. These are the wonderful roads already referred to, which Humboldt in his *Vues des Cordillères* speaks of as among the most useful and stupendous works ever executed by man; and Hernando Pizarro, that in all Christendom never were so fine roads seen in so rough a country, constructed only for travellers on foot. They passed over the snowy summits of the Sierras, through the mountains by tunnels cut in the solid rock, over the precipices by steps, and the awful *quebradas* (or chasms) and rivers by solid masonry, or by bridges swung by osier ropes. With the same bold engineering, their aqueducts for irrigating the dry soil of the valleys brought water for hundreds of miles from distant sources in the mountains. The ruins of these, and of temples, palaces, fortresses, and terraced gardens, give to this portion of the Andes a greater interest for the mystery attached to its ancient inhabitants, than one experiences in viewing in the Apennines or Alps the ruins of old Roman works. In these valleys, the grains of the temperate latitudes, as wheat, barley, &c., are still cultivated.—Large cities are still seated among the mountains, as Potosi, at one time a city of 150,000 inhabitants, the most elevated city in the world, placed at a height of 13,380 feet above the sea, and still at the foot of much higher elevations, in which are found the silver mines, that have associated its name with mineral riches. To the N. E. of it is Chuquisaca, the capital of Bolivia, in the midst of cultivated fields with a population of 18,000. La Paz, a few leagues from the southern extremity of Lake Titicaca, with 40,000 inhabitants, is situated in a quebrada, or ravine 620 feet below the lake, and still over 12,000 feet above the sea. The lofty double summits of Nevado Illimani tower above the city 7 leagues distant to the E., rising the one 24,200, and the other 24,450 feet above the sea, while not further off to the N. is the great Nevado de Sorata, 25,800 feet high,* which is 4,000 feet higher than Chimborazo, long regarded as the highest peak of the Andes. The water that flows through the quebrada of La Paz, winds around the volcano of Illimani, and flowing northward and uniting with other branches, becomes with them one of the great tributaries of the Amazon. Nine fine bridges cross this ravine in the city. Though the inhabitants are nearly all Aymaru Indians, there are in the city a cathedral, 14 churches, a university, a college of sciences, a law school, and other public institutions. Cuzco, the famous capital of the Incas, captured and occupied by Pizarro, and despoiled by him of its wonderful treasures of gold and silver which adorned the great temple of the sun, is still a fine city, its houses of stone in the ancient forms and covered with red tiles. Lake Titicaca, which is 12,800

* Guyot, *Earth and Man*. Enc. Brit. "25,200, according to observations of Pentland."

feet above the sea, covers a surface of 4,000 square miles. Its shores and islands display many ancient ruins. Nearly all this fine region is too elevated for the growth of trees. The several passes which connect it with the coast, cross the western Cordilleras at elevations varying from 18,000 to 18,000 feet.—From the region of La Paz and Potosí, a group of mountains, called, by Humboldt, the Cordilleras of the Chiquitos, branch off toward the east, and unite the Andes with the mountains of Brazil and Paraguay. This elevated region, little explored, is the dividing high land between the waters of the La Plata on the S., and the Marañon on the N. To the S. of the chains are the extensive pampas of the Argentine republic, extending into Patagonia—vast tertiary and alluvial prairies, which spread out over areas of hundreds of miles in length and breadth, and afford pasturage to countless thousands of cattle. In the mud of these pampas are found the remains of the megatherium and mylodon, and other extinct quadrupeds, and with them conclusive evidences of the gradual elevation step by step of the great plains of South America, as also of the mountains themselves. To the N. of this chain, is the level territory watered by the great branches of the Amazon, and covered with impenetrable forests. This region, nearly as large as all Europe, without Russia, is only explored by the occasional travellers that penetrate the interior by its great rivers. Further north, is another mountain chain of moderate elevation, called by Humboldt the chain of the cataracts of Orinoco. This spur of the Andes, which separates the waters of the Amazon from those of the Orinoco, meets the main chain from 2° to 4° N. of the equator. Its extension eastward among the wilds of the sources of the Orinoco, has never been explored by civilized man.—Returning to the main group of the Andes at Cuzco, in lat. 13° S., we find the populous and fertile valley of this region at a lower elevation by 1,000 feet, than the valley of the Desaguadero. Indian corn and wheat are cultivated; and as the table-land still descends toward the N., sugar-cane and other tropical plants appear, but the main ridge of the Andes still towers to great heights between these interior valleys and the Pacific coast. The highest known pass is from Lima in lat. 12° to Tarma and Pasco. It crosses the ridge at an elevation of 15,760 feet. The rain clouds swept on from the N. E. are intercepted on the eastern slopes, and the drainage is all back towards the Atlantic, whence the abundant waters have been brought by the trade winds. The strip of land 20 to 50 miles wide along the coast is singularly dry; no rains reach it from over the mountains, and the vapors raised along the Pacific, are driven by the prevailing winds from its shores. The high table-lands of Pasco, about the latitude of 11° S., are famous as the highest points of the Andes occupied by man. Here are worked some of the richest silver mines of Peru, at an

elevation of 14,000 feet, and only 1,500 feet below the line of perpetual snow. From this point for 400 miles northward, to the Andes of Quito, the mountains decline in height, and no peak for more than 7° S. of the equator reaches the line of perpetual snow. The Andes crowd more closely on the western coast, so that the showers that swell the sources of the Amazon fall within sight of the Pacific, yet they spread in parallel north and south ridges over a vast width of country, and between the different ranges, the great branches of the Amazon, as the Marañon, the Huallaga, and the Ucayli, find their way in a northerly direction to enter at right angles the main river bound on its eastern course. The valleys of these rivers afford convenient situations for roads, and they are connected with the coast by various passes over the western summits; one of the principal of these is the road from Truxillo, in lat. 8° S. on the coast, to Caxamarca in the valley of the Marañon, over a summit of 11,600 feet elevation. Thence the road continues northward to Chachapoyas, and from this place over the central ridge of the Andes to Moyabamba and Tarapoto on the Huallaga. All this fine region of the Andes, with its numerous towns and rich mines, is occupied principally by Indians. Farming and mining are almost their only employments. With their rude implements and little skill, it is estimated that the products of the silver mines of Peru since 1680, have amounted to \$1,500,000,000. The other products of the mountains hardly pay for transportation; the most important are the bark of the cinchona tree which abounds in the forests on the eastern ranges, and the sarsaparilla which is very common in the densely wooded plains of the rivers east of the mountains.—Continuing toward the equator, the mountains retain their form of three or more main parallel ridges, inclosing cultivated valleys with populous towns. Near the equator they assume features of great beauty and interest. Here, in a narrow limit, are clustered some of the famous peaks of the Andes, Chimborazo, 21,800 feet high, long believed the highest summit of the range, and Cotopaxi, “the most beautiful and the most terrible of the American volcanoes.” Cayambé, also a volcano, and 750 feet higher than Cotopaxi, is crossed by the equator. Pichincha is a volcano, 15,900 feet high, on the western range midway between Quito and the Pacific. On its summit still stands the signal cross, set up by the commissioners appointed by France and Spain, to measure the degree of latitude near the equator, which was accomplished by them between the years 1735 and 1745 upon the elevated plain of Quito. The height of the city was determined by them, as also of the numerous volcanic summits in view. Quito itself was found to be 9,540 feet above the ocean, and the plain on which the degree was measured from the equator S., was 12,000 feet high. As noticed by Humboldt, the elevation of the table-lands of South America,

from which rise its gigantic mountains, is already so great, that the effect of their enormous height is in a measure lost. The populous districts and large cities along their range are themselves upon mountainous elevations, though, as spoken of in relation to the still higher summits around, they are said to be in valleys among the ridges.—From the beautiful plain of Quito the Andes continue to range northward with the line of the coast. At 2° north of the equator, on the southern borders of New Granada, the head waters of the streams are first struck, which flow into the Caribbean sea. Their course is between the different ridges, and as these diverge and open out toward Venezuela, the numerous streams east of the eastern Cordillera are directed together into the Orinoco, while on the other side they are constrained in narrower valleys to seek the outlet of the Magdalena, and of its western arm, the Cauca. And still further west, under the shadow of the dividing ridge, which separates it from the Pacific, with summits so low, that they tempt the construction of a canal to connect the waters of the two oceans, runs the deep and sluggish Atrato. The coast mountains at its mouth bend sharply round to the west, and form the bow-shaped isthmus of Panama,—thence through central America the mountain range, though still called the Cordilleras, is not usually regarded as the Andes. The eastern ranges spread like opened fingers toward the Caribbean coast, upon which they abut in bold promontories. The only summits which reach above the line of perpetual snow mark of 5° N. lat. are on the range called by Humboldt that of the “Coast of Venezuela.” The summits of the Santa Martha, east of the mouth of the Magdalena, rise almost directly from the waters of the Caribbean to the height of 19,000 feet. Covered deep with snow, they form a most conspicuous land-mark to the navigators of this sea. The magnificent scenery of these northern ranges of the Andes is fully described by Humboldt, who, with his companion Bonpland, spent years in traversing their wild passes, gathering in their scientific researches rich stores of information, which are long likely to continue the principal fount from which our knowledge of the country is derived.—The volcanoes of the Andes are remarkable for their continuity, in scattered groups, from the northern coast of Patagonia, in lat. 43° 28' S. to the northern limits of the Andes near the equator; and even into central America the continuation of this volcanic belt may be traced in the Cordilleras of Costa Rica, Nicaragua, Honduras, and Mexico. The most southern group extends from Yantales, near the island of Chiloe, to Coquimbo, in lat. 30°. There is then a space of more than 8 degrees of latitude with no volcano known to have been in action, to which succeeds the range of volcanoes of Bolivia and Peru, the extent of which is from lat. 21° S. to lat. 15° S. Thence to the volcanoes of

Quito is a district of 14 degrees of latitude, little known and thinly populated. No volcanoes are spoken of in it, but they may be there and have escaped the observation of civilized man. The volcanoes of Quito extend from 100 miles south of the equator to 130 miles north of it; and from their northern termination it is 6 degrees further to the southern termination of the volcanoes of central America. They are not only remarkable for the long line of country they spread over, but also for the great height of many of the peaks, and their extremely destructive character. Cotopaxi in Ecuador reaches the height of 18,858 feet above the level of the sea; and its eruptions are stated to have been more frequent and destructive than those of any other mountain. The immense collections of snow which cover its conical sides were melted down in January 1808 in a single night. Deluges are thus caused, as also by the torrents of water ejected through the fissures which open during the earthquakes. The mud of volcanic materials, called *moya*, is then swept down in such quantities as to fill valleys and dam up rivers. Fish are thrown out from subterranean cavities in which, according to Humboldt, they have lived and multiplied, so that from the immense numbers thus destroyed sickness is produced among the people. But the volcanoes of the Andes are singularly exempt from floods of lava. From high up the flanks of Antuco in Chili, the summit of which rises 16,000 ft. above the sea, immense currents of lava flowed in 1828; but this is a rare occurrence, the matters usually ejected being vapors and scorias. The outbursts of the volcanoes are closely connected with the frequent and disastrous earthquakes of this region. These commotions appear to extend under the whole range of the Andes, and even far out under the ocean. So frequent are they that M. Boussingault is of opinion that a full register of them would show they are incessant. In some districts of Ohili it is rare that a month passes without shocks, and the volcano of Rancagua in Ohili, which, like Stromboli, is in incessant action, testifies to the existence of forces beneath the surface, which are ever ready to shake and shatter the everlasting hills. Nor is it in recent times alone that these forces have been exerted to lift the continent above the waters. The geological structure of the Andes proves that similar operations have been continued from remote geological periods, and that some of the ridges have been in different epochs submerged beneath the sea, where they received the deposition of the rocks peculiar to those periods, and then were again lifted into their elevated position. In the pass of Uspalata in Chili the two parallel ridges, based on the ancient porphyries, are capped, the range next the coast with black clay-slates, containing the gryphea, ammonites, and other fossil shells of the middle secondary rocks, and altered by intrusion of the igneous rocks of the mountain; while the eastern range is covered with still

erates made up of the fragments of the rocks of the western range, and bearing all the appearance of the tertiary strata found along the Pacific coast. These later formations also are intermingled with trap rocks and volcanic tuffs, and altered by contact with the granitic rocks, which since the deposition of the sedimentary rocks have intruded among the strata. The metallic veins from the granite also penetrate them, and veins of gold have been worked in close proximity to fossil trunks of trees, found by Darwin standing embedded in the stratified rocks. The Andes appear throughout their length to carry a similar geological structure, which is made manifest as well by a similarity of mineral productions as by the reports of those naturalists who have ascended its summits; granitic and porphyritic rocks form its lower portions, and on these rest immense formations of mica-slate, gneiss, and quartz rock. Upon the very summits are found the tertiary strata, which, like the same formation extending along the Pacific coast, are productive in beds of bituminous coal, and the variety called brown-coal, at intervals from Patagonia to Panama. Beds of this coal are worked in Chili for the use of steamships; and in the mining region of Pasco in Peru, in the immediate vicinity of its celebrated silver mines, and at an elevation of over 14,000 feet, coal probably of the same age is found in abundance. The quality of such coal is not likely to be as good as of the bituminous coals of the true coal-formation, but our data are very imperfect on this point, as also whether the real carboniferous rocks are found at all in South America. The secondary rocks generally cover the granite in the mountains of Venezuela, but thin away toward the equator; and in the plains of the Rio Negro and Amazon Humboldt noticed the bare granite in patches of 10,000 square yards forming the level surface. Mines of silver have frequently been alluded to in describing different localities along the Andes. Near the equator and north of it they are not productive. But in Peru and Bolivia they are probably unsurpassed in richness by any mines of this metal in the world. The mines of cinabar of Huanca Velica, of southern Peru, have in former times produced very large quantities of mercury, and the same ore is also found near Tarma in the valley of the Xauxa river; and in the equatorial Andes, north-west of Cuenca, platinum is met with in small grains in the alluvium near the Pacific coast of New Granada. Gold is found in the silver veins of Peru, and is worked in veins in Chili. In Bolivia it is washed from the deposits along the streams. Lead ores are common with those of silver; but are not regarded of much value. The copper mines of Chili are very productive in the rich oxides and carbonates of this metal. Many cargoes of these valuable ores are shipped every year to Swansea in Wales to mix with the lean ores of Cornwall; and our own copper smelting establishments along the coast

The production of Chili, and of Peru also, in these ores might be largely increased were there better facilities for getting the ores to the coast, or were there convenient supplies of fuel for converting the ores into products more economical for shipment. The nitrate of soda mines of Peru have already been noticed.—The Andes range is continued from the isthmus of Panama northerly under various names, traversing the whole North American continent, until it reaches Point Barrow, on the Arctic ocean, a distance in the whole of about 10,000 miles.—The name, *Andes*, according to Garcilasso, is derived from *Anti*, the name of an ancient province, that lay east of Cuzco. Others think it may have come from the aboriginal word *anta*, which means copper, this metal being so abundantly distributed through the mountains. Col. Tod, in his work on Rajasthan, notices that the northern Hindoos apply the name Andes to the Himalaya mountains.

ANDKHOÖ, ANDKOU, or ANKOL, a town of Independent Tartary, and capital of a small khanate of the same name, on the north slope of the Huzareh mountains, about 70 miles west from Balkh. It is situated on one of the routes between Bokhara and Afghanistan, but is scantily supplied with water; population, composed of Soonee Mohammedans, about 25,000.

ANDLAW, HENRICH VON, a German politician, born near the beginning of the present century, of an old noble family of Alsace, that had been distinguished in the affairs of Germany since the 18th century. In 1821 he entered the military service of Baden, and abandoned it in 1825. His political career began in 1833 by his election to the first chamber, on behalf of the nobility of Murg. He became the champion of the aristocracy and of the old theocratic and feudal method of government, which had been done away with by the revolution of 1789. He maintained a vain opposition to the political reforms which were introduced, and during the commotions of 1848-'50, attempted to show that such disorders were the legitimate results of the late legislation. Though but few sympathized with his principles, his character and eloquence have made him respected.

ANDOCIDES the orator, the son of Leogoras, was a native of Athens, born 467 B. C. After discharging several important public functions, he was accused of having aided Alcibiades in profaning the mysteries and mutilating the *Hermæ*, and was cast into prison. He was, however, soon liberated, on promising to disclose the names of the guilty parties. He named 4, and all whom he named were executed; but being unable to establish his own innocence, he was stripped of his civic privileges, and driven into exile. On the overthrow of democracy, and the establishment of the government of the 400, he returned again to Athens, but hardly had he set foot in his native city, when he was arrested by order of the oligarchical leader, and put on his trial for having rendered some service

to their democratical opponents at Samos. By springing to an altar in the court, and placing himself in the position of a suppliant, Andocides saved his life on this occasion. He was, however, convicted, and a second time imprisoned, but escaping soon after, he fled to Cyprus, where he remained till another revolution at Athens encouraged him to go thither once more to solicit the restoration of his rights. He was as unsuccessful now as before, and had to retire a third time into banishment. On the overthrow of the tyranny of the 80, he was, however, permitted to return, and for several subsequent years, he enjoyed much of his former consideration and influence, but having been convicted of illegal conduct during an embassy to Sparta, he was a 4th time driven into exile, where he died at an advanced age. There are 4 orations of Andocides extant, 3 in defence of himself, 1 against Alcibiades. His style is simple and unadorned. The best edition of these orations is that of Baiter and Sauppe, published at Zurich in 1888.

ANDORRA, a small republic of the Pyrenees, which has managed to maintain its independence between France and Spain, since the epoch of Charlemagne. It is enclosed by the Maladetta and the Moncal, two mountains 11,000 feet high. The valley is about 40 miles long and 24 broad. It is well watered by small rivers, contains thermal springs and iron mines, the soil repays cultivation and has abundant pasturage. The streams yield fish, the mountains abound in game. The capital village contains 2,000 inhabitants. Until 1848 the government was in the hands of a syndic and 2 assessors, one appointed by the king of France, the other by the bishop of Urgel, but since that time it has been administered by 24 consuls chosen by the people.

ANDOVER, a town of Massachusetts, in Essex county, on the Merrimack and Shawsheen rivers, 21 miles N. from Boston. The village is pleasantly situated in an elevated and healthy district, and several railroads pass near to it. The streams in the vicinity afford water-power, which is somewhat employed for manufacturing purposes, but the chief importance and celebrity of the town is derived from its literary institutions. It is the seat of Phillips academy, founded in 1780 by the efforts and munificence of John and Samuel Phillips, who were sons of a clergyman of Andover, and graduates of Harvard college. The former was prominent in the politics of New Hampshire, and the latter was lieutenant-governor of Massachusetts. This is one of the oldest and most highly endowed academies of New England. Its funds amount to about \$60,000, and it has a complete chemical and philosophical apparatus, libraries containing 2,500 volumes, and a superior corps of teachers. The Andover theological seminary was founded in 1807, with the object of "providing for the church a learned, orthodox, and pious ministry." Its original donors were Samuel Abbot, a merchant of Boston, Moses Brown, and William

Bartlett, merchants of Newburyport, and John and Phoebe Phillips of Andover. The whole amount of which it has been the recipient is not less than \$400,000. It is under the auspices of the Congregational order, but is open for the admission of Protestants of all denominations. It has 5 professors, generally more than 100 students, and a library of 21,500 volumes. Its course of study occupies 3 years. Tuition and room-rent are free to all, and additional aid is given to a portion of the students. The "Bibliotheca Sacra," the ablest organ of New England orthodoxy, is edited by the professors, and published quarterly at Andover. The Abbot female academy, established here in 1829, is a flourishing institution, designed especially for the education of female teachers. The buildings of all these institutions are of brick, and stand near together on an eminence commanding a fine prospect. Andover is closely surrounded by the most active manufacturing and commercial cities of Massachusetts, and was happily selected as the site of educational institutions, since it offers an almost rural situation in the midst of the most densely peopled portion of the country. It contains, also, a bank and 4 churches, 2 of which are Congregational, 1 Episcopal, and 1 Methodist. The population by the census of 1855 was 4,810.

ANDRADA, DIEGO DE PATYA D', a learned Portuguese divine, was born at Coimbra in 1523, and died in 1575. He distinguished himself at the council of Trent. One of his sermons, *De Conciliorum Auctoritate*, in which the enlargement of the papal power was advocated, was highly esteemed at Rome.

ANDRADA E SYLVA, BONIFACIO José DE, a distinguished Brazilian naturalist, was born in 1765, and died in 1838. He was a prominent actor in the revolution of Brazil, which led to his banishment to France. He wrote several works on mining.

ANDRAL, GUILLAUME, a French physician, and son and father of a physician, born at Espédaillac, in 1769. His family produced, without interruption, 7 generations of doctors. He began his career as military surgeon, during the wars of the French revolution. In this capacity, at the age of 20, he accompanied the army of the Pyrenees, and in the 8th year of the republic, attended the camp at Amiens; he subsequently was first surgeon to the army of observation in Tuscany, and employed his leisure in writing a notice of the hot-house plants, and the museum of natural history in Florence. Upon the elevation of Murat to the throne of Naples, he invited Andral to his court, and made him chief physician of the hospital and royal guard, inspector-general in the department of civil and military health, and commander of the order of the Two Sicilies. Napoleon himself specially intrusted to him, at one time, the health of the princess Caroline. During the few years that Andral resided at Naples, he saw the rise and fall of a dynasty, and shared the ill fortune of his royal patron. He returned to

France, at Toulon, was intrusted by Murat with despatches for Napoleon, and was on the route to deliver them when he learned the defeat at Waterloo. He was admitted a member of the French academy of medicine upon its organization, and was afterward appointed consulting physician of Louis XVIII., and chevalier of the legion of honor. When the cholera visited France in 1832, he did not hesitate to mingle in scenes not less terrible than a battle-field. In 1851, he was promoted to the rank of officer of the legion of honor, and was a leading member of one of the sanitary commissions.—GABRIEL, son of the preceding, was one of the most eminent physicians of Paris, born Nov. 6, 1797, died Feb. 5, 1858. He graduated at the college of Louis le Grand in 1821; in the following year he became a member of the medical academy, and was admitted to a professorship in the faculty. In 1824, he published his *Clinique Médicale*, which established his claim to eminence in the profession. In 1827, he officiated in the place of Dr. Bertin, as professor of hygiene, and in 1830 he was transferred to the chair of internal pathology. In 1839, he succeeded Bronsais as professor of general pathology and therapeutics. In conjunction with Dr. Gavarret and Dr. Delafond, he published a series of investigations: *Sur les modifications des proportions de quelques principes du sang*. In acknowledgment of the merit of these arduous investigations, and of his other important services to the cause of medical science, he was, in 1842, elected member of the institute. His *Précis d'anatomie pathologique* (8 vols., Paris, 1829), *Cours de pathologie interne* (3 vols., Paris, 1836), *Essai d'hématologie pathologique* (Paris, 1843), have been translated into German and other foreign languages. Dr. Andral was very popular with the medical students, and beside his laborious duties as a professor, and his incessant labors in the field of medical literature, he found time to attend to an extensive private practice. He was married to a daughter of M. Royer-Collard, who, previous to 1830, was the leader of the parliamentary opposition.

ANDRASY, a noble family of Hungary, bearing the title of counts of Esik-Scentkiraly, and Krasznohorka, and tracing its origin to Andoraa, one of the leaders of the Magyar invasion in the 9th century. Numerous members of this family have distinguished themselves in the wars against the Turks, and shine as heroes in Hungarian history. It is at present divided into two lines. Three brothers of the elder line, Mano, Gyula, and Aladar, took an important part in the military and civil events of 1848, in favor of the revolution.

ANDRÉ, I. CHRISTIAN KARL, German educator and agriculturist, born at Hildburghausen, March 20, 1798, died in Stuttgart, July 19, 1881. Previous to his presiding in 1795 over the Protestant seminary of Brünna, he was connected with the celebrated educational institution founded in 1784 by Salzmann at Schnepfenthal in the duchy of Gotha, after the method sug-

gested by Jean Jacques Rousseau, and its prosperity was chiefly due to André's enthusiasm for the cause of education. His love for agricultural science was stimulated in 1812, when he was appointed superintendent of the domains of the prince of Salms, and afterward he found abundant opportunities of diffusing it in his capacity of secretary of the agricultural association of Moravia, and by a variety of periodical and permanent publications, which appeared at Brunswick, Gotha, Leipsic, and at a later period at Prague and Vienna, under the auspices of the Austrian government. In 1821 when this protection was withdrawn from him, he transferred his residence to Stuttgart, where he officiated to the time of his death as secretary of the central Würtemberg agricultural association, and edited the annuals recording its labors. He also continued the almanac which from 1810 to 1824 had been published by him at Prague under the name of *National Kalender*, the title of which, however, he changed into that of *Volksbuch für die gesammten deutschen Bundesstaaten*. During his residence at Prague he was one of the partners of the publishing establishment of Olwe, and in 1817 he held for some time the office of assessor in one of the provincial towns of Hungary. His manual of mineralogy and his encouragement of mineralogical collections and cabinets, gave an impulse to the science in the Austrian dominion, and in Germany generally. His *Gemeinnützige Spaziergänge auf alle Tage im Jahr*, published in concert with Blasche and Bechstein, and many of his other publications, were conceived in the popular spirit of Franklin's "Poor Richard," making knowledge attractive to the masses by popular illustration, and to the educated classes by an agreeable style. His most important work is the *Neueste Geographisch statistische Beschreibung des Kaiserthums Oesterreich* (Weimar 1812). II. His son RUDOLPH, born at Gotha, 1798, died 1825, exerted a wide influence upon the management and the raising of sheep. His work on that subject was published at Prague, and passed through a 2d edition in 1826. He was superintendent of the Moravian domains of Prince Salm-Reifferscheidt, which enabled him to give practical effect to his agricultural conceptions, and to write a valuable essay on the administration of Austrian domains. He is also author of a *Darstellung der vorzüglichsten landwirthschaftlichen Verhältnisse*, of which the 1st edition appeared at Prague in 1815, and a 8d with comments by Rieger in 1831. III. EMIL, the brother of the preceding, was born at Schnepfenthal, March 1, 1790. After the termination of the Austrian war with France, in which he had taken a part, he resumed his office connected with woods and forests, which he had previously held under the prince of Salm, and which he now occupies under the prince of Auersperg, and since 1838 under the prince of Odescalch. The result of his experience in the management of the extensive

forests upon the estate of these princes, which are chiefly situated within the Austrian dominions, has been embodied by him in 8 essays, published at Prague in 1823, 1826, and 1832.

IV. JOHANN ARNOX, born at Offenbach, near Frankfort on the Main, Oct. 6, 1775, died there April 5, 1849. His father was Johann André, the founder of the celebrated musical establishment, which still continues to prosper at Offenbach, and which under his son's direction attained a high degree of celebrity, especially by his purchase of the compositions left by Mozart. His own compositions comprised over 100 pieces of all sorts of music, and at the time of their publication were popular in southern Germany, although they are at present almost forgotten. He had received a thorough musical training, and developed his knowledge by pursuing his studies abroad, but the only abiding evidence of his talent is to be found in his *Lehrbuch der Tonkunst* (Offenbach, 4 vols. 1832-1843, the last vol. having been added by his pupil Heinrich Henkel), and in his publication of Mozart's diary, and of some original pieces of that great composer.

ANDRÉ, JOHN, an officer of merit in the British army, but chiefly known through his complicity in the treason of Benedict Arnold. He was born in London, 1751, and executed at Tappan, Rockland county, N. Y., Oct. 2, 1780. His parents were originally from Geneva, where he was sent to be educated, but returned to them before the age of eighteen. Destined for a mercantile profession, he entered a counting-room, remaining in it for several years, but without pleasure in the dull routine of trade. During this time he formed a romantic attachment for a Miss Honora Sneyd, but although his passion was reciprocated, the union was defeated by her father, and she subsequently became the second wife of Richard Lovell Edgeworth, the father by his first marriage of the celebrated Maria Edgeworth. This unfortunate love had great effect upon the destiny of André, who, on the marriage of Honora, abandoned the pursuit of trade, and entered the army. With a lieutenant's commission he went to the Canadas, and being captured in the autumn of 1775 by Gen. Montgomery, was sent with other prisoners to Lancaster, Penn., where, after remaining a few months, he was exchanged. He soon became aide-de-camp to Gen. Grey, the predecessor of Sir Henry Clinton, solely from the intrinsic worth of his character. So pleased was Grey that when he returned to Europe he recommended him to Gen. Clinton, who in a short time became warmly attached to him. On the resignation of Lord Rawdon as adjutant-general of the British army, André, already a captain, was at Clinton's instance promoted to the rank of major, and appointed adjutant-general, although his actual commission for this rank did not arrive from England until after his death. When intrusted with this post of honor, André was but 28 years of age, but he had already won

the universal love and respect of all who were acquainted with him. To a handsome person, graceful and agile, he united matured elegance of mind. With brilliant powers of conversation, he was familiar with several tongues, and in the English language a master of epistolary composition. His reading was extensive, and at ready service without pedantic display; his manners genial and winning, naturally dignified yet sparkling with French vivacity, gave him the *entrée* to cultivated circles. A lover of poetry, his own compositions were not of very high order, though he excelled in what are called *vers de société*; while in art his pencil produced spirited sketches of landscape or figures, his humor frequently inspiring caricature. He was ambitious of distinction, which the memory of his lost love ever prompted him to yearn for, and he manifested enthusiastic devotion to the royal cause. (A full account of his connection with the treason will be found under the head of Arnold; our narrative of his subsequent adventures dates, therefore, from the period of his farewell with the American general.) When the traitor Arnold parted from Major André at Joshua H. Smith's house, near the village of Haverstraw, N. Y., he left with him a number of papers in his own handwriting, which would enable the British general, Sir Henry Clinton, to direct his attacks against West Point with almost absolute certainty of success. These papers, at Arnold's instance, were carefully concealed by André between the soles of his feet and his stockings, but the fact that these were all boldly written in Arnold's own hand, which might be readily recognized, proves how little dread he had of discovery. The plotters parted on the morning of Friday, Sept. 22, 1780; Arnold, assured of safety, returning to head-quarters, while Major André, in disguise, remained in solitude all that day nervous and anxious. He cast many a glance toward the Vulture man of war, from which he had landed the night before, and which being fired upon at dawn that morning, had left her anchorage and dropped lower down the river. Toward evening, however, she resumed her dangerous position, Capt. Sutherland and Col. Robinson being uneasy at the prolonged absence of André. He fully anticipating a return to her under cover of darkness, spoke to Smith upon the subject at the approach of sunset, but to his consternation he found that he had made no preparation for a boat, and would make none. His hands were fatigued with their exertions on the previous night, he himself was suffering from ague, and, in short, he stubbornly refused to take André back to the Vulture. His excuse of the ague was a mere sham, and his unwillingness to aid André in his escape by water has never been clearly explained, as a second passage to the Vulture involved no greater risk than the first, and was slight indeed compared with that attendant on a land journey. He volunteered, however, to accompany André part of his way

on horseback; there was no alternative and they prepared to depart. Just after sunset Smith and André took horse, and, attended by a negro servant, crossed King's ferry, Smith, as he relates, endeavoring to enliven André by conversation, but he was gloomy and reserved. Smith paused for a few moments at the tent of Col. Livingston, commanding at Verplanck's Point, while André and the negro rode slowly onward. They met no detention till about 9 o'clock at night, when they were challenged by a sentinel near Crompond, 8 miles from the ferry. Smith dismounted and asked who commanded the post. It was Capt. Boyd, who, hearing the party, came out and asked Smith his name and business. He answered promptly, saying that he with his companion was on public business by Gen. Arnold's orders, that they had passports and must not be detained. But Boyd seemed to be unusually inquisitive, and demanded a sight of the passports, Arnold having given one to Smith as well as André. André was much alarmed when Smith told him of this, but he was assured that his passport would screen him from all danger. It did so, but Boyd with singular pertinacity drew Smith aside and begged to be informed of this very important business. When Smith accordingly told him that they expected to meet a person with intelligence near White Plains, the disclosure only made Boyd more anxious that they should stop for the night at the house of Andreas Miller, who lived near by. For Boyd said, that both the roads leading through the "neutral ground" below, either the one by way of North Castle to White Plains, or by way of Tarrytown to White Plains were very dangerous, for the "Cowboys" and "Skinners" infesting the two roads had lately been troublesome. André afraid to seem too anxious to press on lest Boyd should suspect him, reluctantly consented to pass the night at Miller's. Smith, who was in the same room with him, says that he scarce slept at all, and insisted on proceeding at the very dawn of day. They took the road to Pine's bridge, and no sooner was André beyond the ken of the vigilant Capt. Boyd, than a magic change seemed at once to come over him, he became cheerful and eloquent, and conversed in the highest spirits on literature and the arts, to the entire astonishment of Smith. They safely reached a little house about two miles above Pine's bridge, and partook of a simple breakfast furnished them by a worthy Dutch woman, whose home had lately been pillaged by the Cowboys. Here Smith left André and took his way back to Fishkill, where his family were sojourning. Major André proceeded alone, and crossed Pine's bridge; there the road forks, and he decided to pursue the route nearest to the Hudson river, and leading through Tarrytown. The "neutral ground," as it was then called, which he had now entered, lying between the American and British lines, some thirty miles in extent from north to south, now one of the most favor-

ed portions of the great Empire State, rich in broad farms, smiling cottages, and stately villas, was at that dark period of revolutionary strife given up to two predatory bands, the Cowboys and Skinners. These men, like all who lurk on the outskirts of camps, were desperate ruffians, living on plunder. By a law of the state of New York, "every person refusing to take an oath of fidelity to the state was considered as forfeiting his property." The Cowboys, mostly refugees, belonging to the British side, would plunder any one who did take the oath, and if he did not take it, the Skinners, professing allegiance to the American cause, would pillage him in their turn. Thus no law governed the "neutral ground," and of course there was no security. "One who had resided at the time in this region, gives a sad picture of its state. Houses plundered and dismantled; enclosures broken down; cattle carried away; fields lying waste; the roads grass-grown; the country mournful, solitary, silent—reminding one of the desolation presented in the song of Deborah." Major André hearing from Capt. Boyd the night before, that the "lower party," i. e. the Cowboys, had been far up the Tarrytown road, had doubtless at once determined to follow it, rather than the other in the interior leading through North Castle and White Plains, because, being an Englishman, he had nothing to dread even from freebooters whose sympathies, such as they were, lay with the royal cause. Beside, the Tarrytown road was the most direct to New York. That morning 7 persons living in this dubious region, near the river, went out to watch for stragglers and stray cattle, for by another law of the state of New York, any person was "authorized to seize and convert to his own use, all cattle or beef that should be driven or removed from the country in the direction of the city, beyond a certain line in Westchester county. By military custom, also, the personal effects of prisoners taken by small parties, were assigned to the captors as a prize." Four persons of the 7 posted themselves upon a hill overlooking the road, about half a mile north of Tarrytown, and the other 3, viz., John Paulding, David Williams, and Isaac Van Wart, lay hid in the bushes near by. Between 11 and 12 o'clock Major André was seen advancing along the road, and these men decided to stop him. He was therefore surprised by Paulding, who suddenly appeared and presenting a musket ordered him to halt. The other 3 came up at the same moment. "Gentlemen," said André, losing his presence of mind, as he naturally might after all the anxiety he had undergone,—“I hope you belong to our party.” “What party?” demanded Paulding. “The lower party,” replied André. “I do,” rejoined Paulding. Then said André, “I am a British officer out in the country on particular business, and I hope you will not detain me a moment.” That fatal sentence sealed his doom. Paulding announced that the party were Americans, and

he their prisoner. Regaining his self-possession he endeavored to pass himself off as a continental officer, and said laughingly, "A man must do any thing to get along." At the same moment he produced Arnold's passport, which but for his heedless avowal would have protected him, but now was as worthless as blank paper. In spite of his remonstrances, he was ordered to dismount, when the men taking him into the thicket told him to strip. He did so, and nothing of value beyond his gold watch was found upon him, with the exception of \$80 of the depreciated continental money; they then ordered him to take his boots off, and he seemed reluctant; they pulled off one boot, nothing was in it, but between his stocking and his naked foot they felt something which proved to be 8 papers. The 8 other papers were found beneath his other stocking, and Paulding, who appears to have been the most earnest of the party, exclaimed, "My God, he is a spy!" André then offered his captors large sums if they would permit him to escape; he would give any amount in money or dry goods, offering to remain in some place of concealment until one of the party could go to New York, and secure the amount. His proposals were all made in vain, his captors deciding to give him up at the nearest military station at North Castle, 10 or 12 miles from Tarrytown. The next day, Sunday, he was, for further security, removed to Col. Sheldon's quarters at Salem, and Maj. Tallmadge, who was convinced as soon as he saw André, of his military character, and had prevailed upon the obtuse Jameson, to whom he was surrendered, not to send him to Arnold, took especial charge of him, and being of equal rank and about his age, formed the strongest attachment to him in the brief period of their acquaintance. While at Sheldon's quarters, André, in declaring his name and rank, wrote an elaborate letter to Washington, which was read by Tallmadge with strong emotion, for hitherto he had no idea of his prisoner's real position in the royal army, though charmed by his manners. After the disclosure of the treason, Washington, then at Robinson's house, made every preparation against a surprise from the enemy, and on Sept. 29 went to Tappan, where the army was encamped. André had been conveyed there, first from Sheldon's quarters at Salem to Robinson's house, thence sent over to West Point, where he remained a day and two nights, his situation in sad contrast to that he had so lately hoped for, and on Thursday, the 28th, he was taken in a barge to Stony Point, and from there by cavalry escort to Tappan. Wherever he appeared he won the hearts of all, and on leaving Sheldon's quarters thanked the officers for the kindness shown him, and said that whatever might be his destiny he could never meet them again as enemies. Maj. Tallmadge narrates that he himself was often moved to tears, as he reflected on the premature and melancholy fate in reserve for the

gifted young soldier, and more than 50 years afterward, when he wrote to Mr. Sparks, the distinguished historian, all that he knew of André, he added that the recollections of half a century past called up such exquisitely painful scenes, that he never wished again to refer to the subject.—The day that Washington arrived at Tappan, a board of officers, consisting of 6 major-generals and 8 brigadiers, was convened, before which André was tried, found guilty, and sentenced to death. In his trial, as in every other scene, his deportment was such as to win the kind respect of his judges. Every effort was made by Clinton to save him, and every fair opportunity allowed by Washington, but the stern rule of war could not be broken. He was prepared for his fate, for Tallmadge had informed him of it, and he only requested that he might be shot; but this mitigation of his sentence could not be granted, and ought not to have been. His clothes having been brought to him from New York, he appeared in the full dress of a British officer, the sword excepted; and on Oct. 2, at mid-day, "the fatal hour having arrived, a large detachment of troops was paraded, and an immense concourse of people assembled. Melancholy and gloom pervaded all ranks; the scene was affecting and awful." André, placed between 2 subalterns, walked with great composure until in sight of the gallows, when he started, for until that moment he had hoped that his petition to be shot was granted. Quickly recovering, he reached the gibbet, and with calm firmness bandaging his eyes, and adjusting the cord to his neck with his own hands, called the spectators to witness that he died like a brave man, when at once the cart moved from beneath him, and all that was mortal of Maj. André was no more.—Thus perished by an ignominious death, at the early age of 29 years, one of the most interesting and accomplished characters connected with American history. In the Trumbull gallery at New Haven are two memorials of Maj. André; one is an original sketch of himself seated at a table in his guard room. He drew it with a pen, and without the aid of a mirror, the day before his execution, giving it to one of the officers for a souvenir. The other is a lock of his hair, shorn after he had been buried for more than 40 years; for in 1821 his remains were disinterred, removed to England, and now, beneath a costly monument, rest with the companionship of illustrious dead in the precincts of Westminster Abbey.—In regard to the captors of Maj. André, suspicions that they were not governed altogether by honest motives, have to some extent gained ground of late years. This idea was first promulgated by Col. Tallmadge in 1817, when he was a member of congress, on the occasion of John Paulding petitioning for an increase of the pension which had been granted to him, as well as Williams and Van Wart. Maj. André died firmly of the opinion, that had the captors been fully aware of his real rank, and his en-

tire ability to pay them the large sums he offered, that instead of delivering him up, they would have suffered him to escape; that in giving him up, even after they had discovered that he was a spy, they imagined that their reward would be much greater than it proved to be, and more than they could hope for in conniving at his escape. Add to this the testimony of André, that in the first instance, having no possible clew to his being a spy, they took him into the bushes, and stripped him in their search for money; further, that in this quest they even ripped up the housings of his saddle, and the cape of his overcoat, before they discovered the papers in his boots, and even these were pulled off with no idea on their part of detecting treason, but for purposes of plunder. These facts, which André always declared to be true, and not alone to Col. Tallmadge, gave him the strongest reasons for disbelief in the honesty of his captors. The region, too, in which they were placed,—the neutral ground, given up at the period to marauders of the worst character,—had additional influence on the opinions of Tallmadge. But his individual judgment had no effect with Congress, and however sincere his opinions, surmise is not evidence, and no proof can be adduced to show that André's captors acted inconsistently with the highest motives of honor and patriotism. It is not the least interesting feature of the story of André, the fascination of which only seems to increase with time, that 40 years after his death, the suspicion which we have noticed should arrest public attention, and be likely henceforth always to divide it.—We cannot refrain from a passing notice on the comments which Washington's decision in the case of André have from time to time elicited. While the millions of his countrymen, and those in foreign lands who revere his memory, are nearly unanimous in their view that he dealt to André only that justice which the exigency demanded, some few think that he was harsh, hasty, and unnecessarily severe. That he was not hasty in his decision, is proved by the simple fact, that from the discovery of the treason until the execution of André, 10 days elapsed, a period in strong contrast to that allowed the unfortunate Hale, who was captured by the British as a spy one afternoon, and hung the next morning at daybreak, being treated meanwhile with brutal cruelty. That Washington was harsh to his prisoner, we have André's own testimony to the contrary, in a letter to Sir Henry Clinton: "I receive the greatest attention from his excellency, Gen. Washington, and from every person under whose charge I happen to be placed." Those who deem that André's request to be shot might easily have been granted, should reflect that martial law decreed the ignominy of the gallows to a spy, and any departure from the rule in his case would at once have been a virtual confession that he was not one. Beside the actual plotting with Arnold in person, André, during 20

months previous, had kept up a correspondence of deception and bribery, which certainly called for no special interposition in his favor.—An attempt has been made by various British writers, and of late by Lord Mahon, to prove that André was not a spy. No amount of ingenuity on the part of the noble author can prove that he was any thing else, or that he landed from the Vulture under the sanction of a flag. He entered into the conspiracy with ready zeal, prepared to sacrifice his life, if necessary, in the attainment of his ends. He came on shore in the dead of night, and, after being hid within the American lines, was captured in disguise, bearing treasonable papers; and "he confessed himself to have acted a part which no one could possibly act who was not a spy." His fate was hard, but just, and any imputation against Washington for approving his sentence, should be spurned with indignation by every American.—A full account of Major André can be found in Sparks's "Life of Arnold," and in the 4th volume of Irving's "Life of Washington." The latter contains a complete detail of André's history, and a noble vindication of Washington, in the happiest style of the author.

ANDREA, GIOVANNI, born near Florence about 1275, died in 1347, a celebrated doctor of canon law. He held, during the long space of 45 years, the position of professor successively at the universities of Padua, Pisa, and Bologna; and his death was deplored as a great calamity for the universities, and the pompous titles of *Rabbi doctorum lux, censor normarum morum*, were inscribed in his epitaph.—GIOVANNI, an Italian engraver who lived at the beginning of the 16th century. His most remarkable work is an allegory of "Mercury and Ignorance," after Montegna, his contemporary, whose prints and those of Dürer he copied and imitated extensively. Bartsch enumerates 88 of his works, which are scarce, some of them commanding very high prices.

ANDREA PISANO, an Italian sculptor and architect, born at Pisa in 1270, died at Florence in 1345. After having been employed at the cathedral of Pisa, on the execution of the bronzes at Perugia, and of some small figures in marble for St. Maria al Ponte at Pisa, he was invited to assist in completing the façade of the cathedral of St. Maria del Fiore of Florence. He also executed a marble statue of Boniface VIII., and two other statues, of St. Peter and St. Paul, for the same church, which were much admired. After having spent some time at Venice, where he executed several small statues for the front of St. Mark's, he returned to Florence, and executed the bronze *rilievi* for the gates of the baptistery at Florence, which gained for him great fame and the honorary citizenship of the republic. The subject is the life of St. John, and the incidents are represented in 22 compartments. As architect, his activity was also great. He designed the castle of Scarperia, the arsenal at Venice, and the church of San Giovanni. By order of Guattieri, duke of Athens,

who had usurped the power at Florence, he fortified and enlarged the ducal palace of Florence, surrounded that city with towers and magnificent gates, and designed a small citadel.

ANDREA DEL SARTO, one of the most illustrious of the painters of Florence, born in that city in 1488, died there in 1530. His artistic genius early attracted attention. After passing some time in the workshop of a goldsmith, he took lessons in drawing from one Giovanni Barile, and subsequently studied under Pietro di Cosimo. But his real instructors were the cartoons and frescoes of Michel Angelo, Leonardo da Vinci, Masaccio, and Ghirlandaio. After executing some oil and fresco paintings, in conjunction with his friend Francesco Bigio, he painted, in 1509, for the convent of the Servi a series of 10 pictures from the life of St. Filippo Benizzi, and in 1514 the pictures of the Epiphany and the Birth of the Virgin, which reveal the characteristics of his peculiar genius, consisting in loveliness of sentiment and faultlessness of execution, rather than in elevation of ideas or grandeur of conception. His coloring is distinguished by sweetness and freshness of tone. His reliefs are singularly bold, and he was a thorough master of chiaroscuro. His pictures from the life of St. John, which he began in 1514, for the *Compagnia dello Scalco*, are painted in chiaroscuro, the cartoons of which are still preserved in the Palazzo Rucellai. These pictures were not completed before 1526. In 1517 his *Madonna di San Francesco*, in the tribune of the Florentine gallery, and "the Contending Divines," in the Palazzo Pitti, attracted great attention. For Francis I. he executed the *Pietà*, or Dead Christ, with the Virgin, St. John, and Mary Magdalen. The king invited him to Paris, and the picture of Charity, which he painted there, is now at the Louvre. In 1525 he painted one of his most celebrated pieces, the *Madonna del Sacco*, so called from the sack of grain on which St. Joseph leans, which has been admirably engraved by Raphael Morghen as a companion to Raphael's Transfiguration. His principal picture of 1528, the *Madonna*, with the saints, is in the Berlin museum, and his "Sacrifice of Abraham," painted in the following year, is at Dresden. He possessed also an extraordinary talent for copying the works of other masters, and his copy of Raphael's Leo X. in the Bourbon museum of Naples, is invariably taken for the original. The charm of his genius stood in exquisite harmony with the charm of his character; but if the one lacked strength, the other lacked grandeur, and his over-mild disposition left him at the mercy of overbearing natures, especially of that of his wife, who was as reckless as she was beautiful, impoverishing him as much by her extravagance as she grieved him by her faithlessness. His struggles were great. He was not always well paid for his pictures, but, under more favorable domestic circumstances, he might have been prosperous, as he had many powerful and rich patrons, especially the

pope's agent, Ottavio de' Medici, and the king of France. Yet he was in constant difficulties. On his return from Paris, these troubles unfortunately assumed a formidable character. The king had given him a considerable amount of money to be invested for his account in rare works of art. Instead of appropriating this money to the prescribed use, it was foolishly squandered by Andrea at the bidding of his treacherous friends. His position became intolerable. His heart broke under the terrible consciousness of having betrayed the confidence of his royal friend. His heartless wife had deserted his home, yet he loved the beautiful woman with the same foolish passion, while the demons of jealousy racked his soul. The great plague which devastated Florence in 1530 finally brought repose. He was only 42 years old at the time of his death. According to some accounts his real name was Andrea Vannucci, and he was called Del Sarto from the fact that his father was a tailor. According to other accounts, his father's name was Agnolo del Sarto, and thus Del Sarto was the artist's real name.

ANDREÆ, JAKOB, an active Protestant theologian of Germany, in the formative period of Protestantism, born at Waiblingen in Württemberg, March 25, 1528, died Jan. 7, 1590. He studied at Stuttgart and Tübingen, and was ordained a pastor in Tübingen in 1549. In 1557 he became preacher to the court of Duke Christopher of Württemberg, whom he accompanied to the diets of Ratisbon and Frankfurt. In 1562 he was appointed professor of theology and chancellor of the university at Tübingen, and provost of the church of St. George, and from this time took an important part in the movements and discussions of the Protestant church. He was particularly influential in securing the adoption of the *Formula Concordia* as the common confession of faith of the two Protestant parties.

ANDREÆ, JOHANN VALENTIN, a German author, who left more than a hundred different volumes, which are frequently alluded to by Herder, was born at Herrenberg in 1586, died at Stuttgart in 1654. After travelling over Germany, Switzerland, Italy, and France, he filled various ecclesiastical positions, and for some time he officiated at the chapel of the king of Württemberg. Some of his Latin works on Christian mythology, &c., have been partly translated by Herder and Sonntag; and his *Civis Christianus, sive Peregrini quondam orantis Restitutio*, originally published at Strasburg, was translated into French and brought out at Geneva in 1622, under the title of the *Sage Citizen*. He published a satire against astrologists, and in 1638 a work advocating republican Christianity in Germany, in which he declared his devotion to the cause of Gustavus Adolphus. His German writings include several poems; among others, *Christliche Gemälde* (Tübingen, 1612), which is highly praised by Herder, who declares that Andreæ boldly

enounced truths in the 17th century, which no one would dare to express in the 18th. His name is frequently mentioned in Germany in connection with a secret society called, from its supposed founder, Christian Rosenkreuz (who lived in the 14th century), the *Rosenkreuzer*. The object of this society was a radical reform of church, state, and society; it came into active operation at the beginning of the 17th century, and Andreæ, from his well-known and frequently expressed sympathies with the progress of humanity, and from his allusions in his work to this society, was on many occasions supposed to have been instrumental in its foundation. Herder, however, denies this, and says that he merely wished to popularize the same humanitarian aims and principles which animate the freemasons.

ANDREÆ, LAURENTIUS, also called LARS ANDERSSON, one of the most learned Swedes of his day, was born in 1482. He studied in Rome, and upon his return to Sweden, was appointed archdeacon of the cathedral at Upsal. In 1520 Gustavus Vasa made him his chancellor, and requested him to undertake the translation of the New Testament. In 1540 he was accused of having concealed his knowledge of a conspiracy against the life of the king, and was condemned to death, but finally escaped by the payment of heavy fines. From that time he lived a retired life, in the town of Strängnäs, where he died April 29, 1552. His translation of the New Testament, which was the first version in Swedish, was published in folio in 1526.

ANDREANI, ANDRÉA, an Italian painter and eminent engraver, surnamed IL MANTUANO, born at Mantua in 1540, died at Rome in 1628. He devoted himself principally to wood engraving, and exerted a marked influence upon the development of that branch of art. He settled at Rome, and first commenced wood engraving some time after Hugo da Carpi. His cuts are printed in chiaro-scuro, and his works have often been confounded with those of Altdorfer, from his using a similar monogram. Two of his best prints are after Titian's Deluge and Pharaoh's Host destroyed in the Red Sea.

ANDREANOV, or ANDREANOVIAN ISLANDS, a group of small volcanic islands in the North Pacific, belonging to Russia, and forming the central part of the chain of the Aleutian islands.

ANDREAS, the name of 8 Hungarian kings of the family of Arpad, the founder of the Magyar monarchy.—ANDREAS I., a cousin of St. Stephen, who introduced Christianity among his subjects, the Magyars, in order to win partisans to his claims to the crown, allowed a persecution of the Christians. He warred more or less successfully against Henry III., emperor of Germany, against his own brother Bela, supported by Boleslas II., king of the Poles, and was slain in a battle against the last in 1058.—ANDREAS II., called the Jerosolimitan, reigned between 1205 and 1235. He ascended the throne in a civil war against his own nephew, and his reign was marked by repeated revolts

of the powerful nobility. At the instigation of Pope Honorius III., he undertook, in 1217, a crusade against the Mohammedans, which ended unsuccessfully, and exhausted the resources of Hungary. He concluded an alliance with Theodore Lascaris, emperor of Constantinople, and with the king of the Bulgarians, both of whom promised to recognize the papal supremacy. In 1222, Andreas convoked a diet to put an end to internal disorders, and there was enacted the *bullæ aurea*, or golden bull, which has been erroneously compared with the English magna charta, as the former established only the privileges of the magnates or aristocracy, and of the bishops. In 1224, Coloman, son of Andreas, was made for a time king of Red Russia, now Galicia, which was soon afterward annexed to Poland. On this temporary event, Maria Theresa, as queen of Hungary, founded her claim to that province at the first partition of Poland. The third wife of Andreas was Beatrice d'Este, who returned to Italy, and gave birth there to a posthumous son named Stephen, who married a Venetian woman, Theodosia Maurocena, the mother of ANDREAS III., called the Venetian. He succeeded Ladislas III., an assassin of his own brother, who was in his turn assassinated by his subjects. He was obliged to conquer his crown against the pretensions of Pope Nicholas IV., and the Emperor Rudolph of Hapsburg, both of whom claimed it as their special fief, as well as against Charles Martel of Sicily, who was by his mother a descendant of the house of Arpad. Andreas was victorious, but the dissatisfied magnates raised up a new pretender in the person of Robert, son of Martel; and Andreas died in 1301, disgusted and mortified by the rebellion. With him the lineage of Arpad ended.—ANDREAS of Naples, son of Charles or Caribert I., king of Hungary, of the house of Anjou, was married in 1333 to the celebrated Joanna, grand-daughter of Robert, king of Naples. He was of a savage and violent temper, and treated with contempt his wife, and the Neapolitan nobles and courtiers. When Joanna ascended the throne, Andreas was simply created duke of Calabria, and deprived of royal power. He asked the pope to crown him, and on the flag prepared for the ceremony were painted various instruments of execution; thus foretelling how he intended to deal with his enemies. The nobles organized a conspiracy with the assent of Joanna. On Dec. 18, 1345, the conspirators seized him by night at a monastery in Aversa, and hung him from a balcony. The corpse was then thrown into a sewer.

ANDREASBERG, a mountain town of the upper Hartz, and one of the principal mining towns of Hanover. Iron, silver, lead, cobalt, copper, and arsenic, have been mined there for nearly 800 years. The town is nearly 2,000 feet above the sea-level.

ANDREE, KARL, a German writer, born about the commencement of this century in the north of Germany, distinguished for his geo-

graphical works, and his study of the institutions and literature of this country. His principal writings are, *America in geographischen und geschichtlichen Umrissen* (Brunswick, 1831), *Polen in geographischer und geschichtlicher Hinsicht* (Leips. 1831), a treatise on universal geography, and several miscellaneous productions. He has also translated from the English, Back's "Travels in North America," and Paulding's "Westward Ho." In connection with his other literary pursuits, he has been a writer for the press in Bremen, Carlsruhe, and Dresden, in which last-named city he now resides.

ANDREEWA, or EMDERY, a town 40 miles S. of Kiglar, on the Aktash, a small river in the Russian government of the Caucasus. It contains 3,000 houses and 12,000 inhabitants. It formerly exported a considerable number of female slaves for the slave markets of Constantinople, and elsewhere; now it produces rice and wine. It has several Moslem seminaries.

ANDRÉI, ANTOINE FRANÇOIS, a member of the French convention, born in Corsica about 1740, died 1800. He was employed in a Parisian theatre when the electors of Bastia nominated him, in Sept., 1792, to represent their department in the national convention. In the trial of Louis XVI., he voted with the Girondists for the appeal to the people, detention as long as the public safety required, and the reprieve. He was arrested after the events of May 31, 1793, and owed his safety only to the fall of Robespierre. He reentered the convention, and was one of the council of 500, which he left in 1797.

ANDREINI, GIOVANNI BATTISTA, an Italian writer, born about 1578. He wrote a sacred drama, entitled *Adamo*, of little merit, from which Voltaire supposes Milton to have borrowed the plot of his "Paradise Lost."—II. ISABELLA, mother of the preceding, a famous Italian actress, was born at Padua, in 1562, and died in 1604, at Lyons. She was an accomplished scholar, and enjoyed the friendship and esteem of the learned world in her day. Her writings, which are voluminous, are still extant.

ANDRELINI, PUBLIO FAUSTO, better known as PUBLIUS FAUSTUS ANDRELINUS, a modern Latin poet, born at Fiorli, in the Roman territory, about the middle of the 15th century, died at Paris, Feb. 25, 1518. He taught for 30 years in the university of Paris, and contributed to the revival of learning in France. He received from Charles VIII., and afterward from Anne of Brittany, two life-pensions, with the titles of king and queen's poet, *poeta regius et regineus*. Erasmus was his friend, but indulged witticisms at his expense after his death, saying that his verses wanted but two things—*vows* in Greek and *mens* in Latin. Some letters of his are printed among those of Erasmus.

ANDREOSI, ANTOINE FRANÇOIS, comte d', a French artillery officer, born in Languedoc in March, 1761, died at Montauban in Sept. 1828. He took an active part in the

revolution, was a lieutenant of artillery at 20, and served under Bonaparte in Italy and Egypt. He was a member of the institute of Cairo, to whose "Transactions" he made several contributions. When Bonaparte returned suddenly to France, Andreossi was one of his few companions. During the peace of Amiens he was the ambassador to England. After his coronation, Napoleon made him inspector-general of artillery, and a count of the empire. He was afterward ambassador to Austria, until war was declared in 1809, and subsequently to the battle of Wagram, was made temporary governor of Vienna. He was then for several years ambassador at Constantinople, and highly popular in that capacity. He was recalled by Louis XVIII., and thenceforth lived in private life, only emerging during the 100 days to aid his master in his last struggle. The remainder of his life was employed in preparing for publication several works on scientific topics, written during his residence in Turkey. His treatise, *Sur le Bosphore de Thrace, comprenant le système des eaux qui abreuvent Constantinople*, has a high reputation.

ANDRES, JUAN, a Spanish Italian scholar, born of a noble family in 1740, near Valencia, Spain, died Jan. 17, 1817. When only 14 years old, he entered the society of Jesus, in which he had been educated. He knew thoroughly the Greek, Hebrew, Italian, and French. On the expulsion of the Jesuits from Spain in 1767, although not bound by any vows, he determined not to abandon the society, and was consequently removed, with his companions, first to Corsica, and then to Ferrara, where they established a university. Andres was intrusted with the teaching of philosophy, and meanwhile he engaged in scientific studies. In 1776, he published, in Italian, *Saggio della filosofia di Galileo*, expounding with skill and fairness the system of the great philosopher. Six years later, his principal work, *Dell' Origine, progresso, e stato attuale d'ogni letteratura*, 7 vols. 4to, was published, and extensively read at once by the scholars of every country. Sismondi praises it with some qualifications. It was immediately translated into Spanish, and published at Madrid by Carlos, Juan's brother. They regularly corresponded with each other, and in 1794 Juan collected his own letters under the title of *Cartas familiares a su Hermano D. Carlos*. The letters are written in elegant Spanish.—When the Jesuits were allowed to return to Spain, Andres went with them; but a long residence abroad had created associations which made Italy the object of his partiality; consequently, on the death of his father, he returned there, and the king of Naples made him prefect of the royal library, and vocal of the junta on public instruction. The high estimation in which his services were held, prevented his removal at the French conquest. He became blind in 1815, but this did not divert his scientific and literary pursuits, which were continued till his death.

ANDRES DE USTARROZ, JUAN FRANCISCO, a Spanish historian, born at Saragossa in 1606, died at Madrid in 1647. He distinguished himself by his labors in the field of Spanish history. He presided over the archive office, and shortly before his death he was appointed to the office of national chronicler. Latassa gives a complete list of his numerous literary productions, some of which are preserved in the royal library of Madrid.

ANDREW, a north-western county of Missouri, separated from the Indian territory by Missouri river, intersected by the Platte, and several other streams, and comprising an area of 425 square miles. The soil is fertile, and well adapted to grain, tobacco, hemp, and pasture. In 1850 it produced 518,795 bushels of Indian corn, 109,547 of wheat, 59,298 of oats, 2,478 tons of hay, and 475 of hemp. There were 8 churches, and 1,600 pupils attending public schools. Capital, Savannah. Pop. in 1856, 10,944, of whom 1,078 were slaves.

ANDREW, SAINT, one of the Twelve Apostles, born at Bethsaida. The name of his father was Jonas, and he was the brother of St. Peter. He was first a disciple of John the Baptist, and the first called of the disciples of Jesus Christ, to whom he brought his brother Simon, afterward called Peter, and is hence called by some of the fathers "the Rock before the Rock." Of his apostolic labors, nothing is said in the Acts of the Apostles. According to Origen, he preached in Scythia. St. Jerome says that he preached also in Achaia, and other ancient writers say also in Sogdiana, and Colchis, Argos, and Epirus. He is honored as the principal patron of Scotland. Tradition reports that he was crucified at Patras, in Achaia, on a cross of this form, \times (*crux decussata*), hence called St. Andrew's cross.

ANDREWS, ANNIE M., a young American lady, who distinguished herself by her self-sacrificing ministrations to the sick during the prevalence of the yellow fever at Norfolk, Va., in 1855. Miss Andrews was born about 1835. She is the daughter of a medical man of New York, who realized a competency by the practice of his profession, and who now resides upon a plantation of his own in the vicinity of New Orleans. She was brought up by an aunt in the state of New York, and, while quite a child, she displayed a remarkable fondness for visiting the sick. When the fever at Norfolk broke out, she was living at Syracuse, N. Y., and her sympathies being aroused by the accounts of the terrible ravages of the disease, she determined to volunteer her services as nurse to the mayor of Norfolk, who, on her arrival there, immediately availed himself of her generous offer. Miss Andrews's philanthropic exertions were attended with peculiar difficulties, as the arrangements for housing the sick were exceedingly imperfect, the race-stand, which had been converted into an infirmary for the occasion, being only a miserable building, unprotected against storm and rain, and in fact

often adding, by its total lack of comfort, to the suffering of its inmates. Although she had never before served as a nurse, Miss Andrews seemed not only equal to the occasion, but actually became to the victims of the yellow fever at Norfolk what Florence Nightingale was to the victims of the Russian war in the Crimea—a messenger of mercy and goodness. In acknowledgment of her eminent services, the Howard association of Norfolk presented her with the gold medal usually awarded to distinguished physicians.

ANDREWS, BENJAMIN S., a printer and bookseller of New England, was born at Boston, Nov. 18, 1766, died Oct. 1851. In 1788, he commenced business in Boston with Isaiah Thomas, with whom he had served an apprenticeship in Worcester. Their business was lucrative. In 1794, they established a branch of it at Baltimore, and in 1796 another branch at Albany. Among their publications were the works of Noah Webster, the geographical works of the Rev. Dr. Morse, and the "Massachusetts Magazine," a monthly periodical. He was well known for his industry and frugality, and though he became wealthy, and passed the latter portion of his life enjoying his riches, he was regarded as a pattern of Christian virtue.

ANDREWS, JAMES PETTIT, an English historian, and writer on various topics, was born near Newbury, Berks, in 1787, and died in London, Aug. 6, 1797. His most important work (which he did not live to complete) was his "History of Great Britain, connected with the chronology of Europe." The part published commences with Cæsar's invasion, and ends with the accession of Edward VI. The plan of the work is peculiar, a portion of the history of England occupying one page, while a similar portion of the contemporaneous history of Europe is placed on the page opposite. He also wrote a continuation of Henry's "History of Britain," published in 1796.

ANDREWS, JOHN, an American clergyman, born in the state of Maryland, April 4, 1746, died March 29, 1818. In 1767, he was admitted to holy orders in London, and afterward served as a missionary and clergyman in several different parts of Maryland, which state he, however, quitted at the time of the revolution, as he did not sympathize with the popular movement. In 1785, he was appointed head of the episcopal academy at Philadelphia, in 1789 professor of moral philosophy in the university of that city, and, in 1810, provost of the same institution.

ANDREWS, LANCELOT, bishop of Winchester, a learned scholar, and theological writer, was born at London in 1565, and died at Winchester House, Sept. 25, 1626. He held, successively, the bishoprics of Chichester, of Ely, and of Winchester, and was made, by James I. (who esteemed him highly) a privy councillor. He was one of the authors of the common translation of the Scriptures. His best works are his sermons, his lectures on the Ten Com-

mandments, and his Orphan lectures; but his style, though much admired in his own day, is affected, and overloaded with imagery. He had high notions of ecclesiastical authority, which brought him into conflict with the Puritans. He was generally esteemed, however, as a pious, charitable, upright, and munificent prelate.

ANDRIA, a town of Naples, province of Terra di Bari, near the Adriatic. It is a bishop's see, has a fine cathedral founded in 1048, a royal college, and 8 *monts de piété*. Population, 22,000.

ANDRIAN-WERBURG, VICTOR, baron von, an Austrian politician, born near Goeritz, Sept. 17, 1818. He studied at Vienna, and has resided during the greatest part of his life in Venice and Milan. He published, in 1841, a work entitled "Austria and her Future," which excited considerable attention. In 1848, he was appointed by the states of southern Austria a member of the parliament of Frankfort, and was at the head of the deputation to inform the Archduke John of his election to the regency. He was ambassador of the empire to London during this and the succeeding years, and upon his return to Austria retired from public life. In his political opinions he was a moderate supporter of the aristocracy, in opposition to the democratic theories then current in France. He stated his principles in a publication entitled "Centralization and Decentralization in Austria."

ANDRIEUX, FRANÇOIS GUILLAUME JEAN STANISLAS, a member of the French academy, born at Strasburg, May 6, 1759, died at Paris, May 10, 1833. He studied law in the office of a proctor to the Châtelet. In 1780 he wrote a successful comedy, called *Anaximander*. He was one of those lawyers like the late Justice Talfourd, in England, who combine a taste for the law and the drama; his best comedy, *Les Etourdis*, appeared in 1787. He welcomed the revolution of 1789 with enthusiasm. When the Girondists were put under arrest, he hid himself in a friend's house in a remote village. On May 28, 1794, he returned to Paris to superintend the representation of one of his comedies, *L'Enfance de Jean Jacques Rousseau*. He now began to study English literature, and several of his pieces from this time show traces of his familiarity with Swift, Addison, and Steele. On Jan. 3, 1795, he was made judge of the court of cassation, and was admitted into the *Institut National*, which had been created in place of the academy. In April, 1798, he was chosen by the moderate party one of their candidates to the council of 500. After the 18th Brumaire he was appointed by the consulate a member of the tribunate. The first consul finding Andrieux's independence annoying, removed him from the tribunate in Sept., 1802. Fouché offered him a place as censor of the press; Andrieux, though in want of money, refused, adding playfully, "Remember, citizen minister, I am one of those who are doomed to

be hung and not to be the executioner." Joseph Bonaparte made him his librarian, a post he held for 10 years. He also filled the chair of grammar and belles-lettres at the polytechnic school. In 1814 he was elevated to the professorship of French literature in the college of France. This office he exercised in a classical and purist spirit. He did not like the more modern writers, particularly Goethe and Schiller. The romantic school of literature was the object of his unsparring attacks. In 1829 he was appointed perpetual secretary of the academy, and occupied himself with a new edition of the dictionary. He continued his professorship till the last, saying that a professor should die at his post. He died universally respected for integrity, and love of principle. His chair in the academy was filled by the statesman and historian, Adolphe Thiers, who pronounced an eloquent eulogy upon him, which is attached to the Paris editions of Thiers's "History of the French Revolution."

ANDRISOUS, or PSEUDO PHILIP, was born at Adramyttium, of low parentage, and claimed to be the natural son of Perseus, the vanquished king of Macedon, 16 years after the death of the latter. His resemblance to Perseus was striking. He called Demetrius Soter, the king of Syria, to his help, hoping that the tie of relationship, for Demetrius had married the sister of Perseus, would stand him in good stead. Demetrius Soter delivered him up to the Romans. He was kept in Rome, but was not thought worth the guarding strictly, so he easily found means of escape. He fled to Thrace, yet independent of Rome, and found the Thracians ready to support him. Collecting an army there, he invaded Macedonia, drove the Romans out of this kingdom and even Thessaly; was arrested at Thermopylæ by Scipio Nasica at the head of an Achaean army, and driven back into Macedon. Andrisous defeated and slew the Roman prætor, Juventinus, who had been sent to wrest Macedonia from him. He now assumed the name of Philip king of Macedon, received the ambassador sent to him from Carthage, and formed an offensive and defensive alliance with that state against their common enemy. He was driven out of Macedonia by Cæcilius Metellus; fled to Thrace, collected a new army; was again defeated by Metellus, 149 B. C.; was surrendered to the Romans by the Thracian king, Byzas, taken to Rome, graced the triumph of Metellus, who was thenceforth called Macedonicus, and put to death by order of the Roman senate, 147 B. C.

ANDRO, a fertile island of the Grecian Archipelago, and forming part of the kingdom of Greece. The Andrians assisted in the invasion of Greece by Xerxes, but successfully resisted an attempt by Themistocles to subjugate them. According to Pliny, here, near the temple of Bacchus, was a spring which had the taste of wine during the feast of Bacchus.

ANDROCLUS, a Roman slave of whom An-lus Gellius says, that having fled from the tyr-

to Rome, and sentenced to be devoured by wild beasts. He was exposed in the circus, and a lion of extraordinary size and fierceness was let loose on him, but instead of tearing him to pieces, the animal began to caress him. The lion and the slave had, in fact, been old acquaintances. Androclus, while in Africa, had chanced one day to take refuge in a cave into which a lion, lame, and in apparent agony, presently entered. Seeing the intruder, the lion went up to him and stretched out his paw, as if soliciting relief. Androclus extracted a large thorn from it, and in a few days the lion's paw was as well as ever. For some time, Androclus and the royal quadruped lived together on the most amicable terms in the cave, the latter providing food for his physician. They parted at length, however, not to meet again till they met in the Roman circus as victim and executioner, and then the scene above described took place. The moment the emperor heard this singular story, he ordered Androclus to be pardoned and presented with the lion, which he used, afterward, to lead about Rome, to the astonishment of the citizens.

ANDROIDES (Gr. *ανθρωπος*, man, and *ειδος*, image), a machine in the human form, which is made by certain springs and mechanical forces, to perform some of the natural motions of the living man. See **AUTOMATON**.

ANDROMACHE, a daughter of Eëtion, king of Cilician Thebes. She was first married to Hector, by whom she had one son named Scamandrius or Astyanax. After the capture of Troy, Andromache became the prize of Pyrrhus, the son of Achilles, and bore him 3 sons, Molossus, Pielus, and Pergamus. On the death of Pyrrhus, she became the wife of Helenus, brother of Hector, by whom she had a son called Cestrinus.

ANDROMEDA, a mythical princess, daughter of the Ethiopian king Cepheus and Cassiopea. Her mother having boasted that the beauty of her daughter surpassed that of the Nereids, the latter prevailed on Neptune or Poseidon to afflict the country with a deluge and a sea-monster. In this dilemma, the oracle of Ammon was consulted by the affrighted king, and promised, that if Andromeda was surrendered to the monster, Ethiopia should be relieved. The paternal feelings of Cepheus were repugnant to this sacrifice, but the fears of his people compelled him to yield, and Andromeda was chained to a rock to be devoured by the monster. In this condition she was found by the hero Perseus, who slew the monster, and delivered the maiden, whose hand he soon afterward demanded and obtained. But Andromeda had been previously promised to Phineus, who, enraged at the insult he had received and the success of his rival, collected a company, and attempted, during the celebration of the nuptials, to slay Perseus and carry off Andromeda. He failed, however, and was himself killed with his allies. After her death, Andromeda was trans-

ferred to the mountains and placed among the stars.

ANDRONICUS COMNENUS, emperor of Constantinople, grandson of Alexis I., born in 1110, died Sept. 12, 1185. He early distinguished himself by his martial and dissolute conduct, and romantic adventures. In his youth, he served in the wars of his cousin, the emperor Manuel, against the Turks; but in the march through Asia Minor, strayed from the army into the mountains, was encompassed by Turkish hunters, and remained for some time a captive in the power of the sultan. On his return, he was received with favor by Manuel, whom he surpassed both in virtues and vices, and appointed to the military command of Cilicia. He there pressed with ardor the siege of Mopsuestia, employed the day in the boldest attacks, and the night in song and dance; and though his campaign was unsuccessful, he was rewarded by the emperor with new honors. His intrigues drew upon him the violence of certain exasperated brothers, and he was obliged to flee; and revealed his ingratitude by engaging in a treasonable correspondence with the king of Hungary. He was arrested by Manuel, and imprisoned in a tower of the palace, where he remained 12 years, impatient of the restraint, and thirsting alike for action and for pleasure. In his first attempt to escape, he succeeded in breaking through the wall into a forgotten recess, closed the passage carefully behind him, and his mysterious flight was reported by the guards. His wife, suspected of cognizance of the affair, was imprisoned in the same tower, and discovering her husband, they shared together their provisions, and relieved the tediousness of prison. He soon after effected his escape, but was recaptured, brought back and chained. A third attempt proved, with the assistance of friends, successful, and, mounted on a fleet horse, he started for the banks of the Danube; and after various adventures, arrived at Kiev in Russia. He persuaded the Russian prince to form an alliance with Manuel against the Hungarians, led himself a body of Russian cavalry from the Borysthene, signaled his valor in the assault of Zemlin, and for these services received the full pardon of the emperor. His new indiscretions revived the resentment of Manuel, and he was exiled to a command on the Cilician frontier. Soon after, at the head of a band of reckless adventurers, he undertook the pilgrimage to Jerusalem, and did not fail to captivate the clergy and the kings of the countries through which he passed; and, after roving licentiously through Persia and Turkey, at length fixed his residence at Oenoe, a city of Pontus. He was here when Manuel died, leaving the empire to his son, Alexis, a feeble youth of 12 years. The agents of Andronicus in the capital were active in exciting commotions, and amid the flames of a civil war, he was proclaimed, by the public voice, the only member of the imperial family who had talents sufficient to deliver and govern the

country. He was invited to Constantinople, and arrived in 1182 in the midst of acclamations. He made himself the colleague of Alexia, and soon after both the wife and son of Manuel perished, victims to his ambition and his vengeance. The murder of these made necessary the extinction of any who had the will or the power to punish the murderer, and victim followed victim in rapid and continual succession. Moreover, the memory of the exile was stored with a long list of enemies and rivals, and he now delighted in revenge; and the noblest of the Greeks either suffered or fled from his cruelty. Yet while thus the scourge of those whom he hated or feared, he was equitable in the exercise of private justice; abolished venality in office, and under him the prosperity of the provinces revived. Several places which had revolted were reduced and chastised, but the successful rebel was within the capital. Isaac Angelus, one of the imperial race, was marked as a victim by Andronicus. He took refuge in the church of St. Sophia, whither he was followed by a crowd who immediately proclaimed him emperor. Andronicus was absent with his young wife, Alice of France, on one of the islands of the Propontis; but, upon learning the news, rushed to the capital, only to be overpowered, and dragged with a long chain round his neck to the presence of Isaac Angelus, who, without any form of trial, gave him up to the fury of the populace. Every outrage and torture was inflicted upon him; he was mutilated by slow degrees, and while yet alive, was hung by the feet between 2 statues, one of which supported a wolf, and the other a hog. Amid all the bitterness of his pain, he uttered only the *Kyrie eleison*, "Lord, have mercy." The severities of Andronicus have been defended by some recent historians, on the ground, that the extermination of the Byzantine factions and dissolute nobility was necessary to a splendid plan laid by him for the regeneration of the empire.—ANDRONIUS PALÆOLOGUS, surnamed the Elder, emperor of Constantinople, born in 1258, died Feb. 18, 1382. He was crowned emperor in his 15th year, and held that title 9 years as the colleague, and 50 as the successor of his father Michael. His life was inglorious, and devoted mainly to religious controversies. His generals gained victories against the Franks and the Turks, while he gave himself up to the effeminacy of the court and the refinements of theology. In his reign, Osman, the founder of the Ottoman empire, effected the conquest of Bithynia, and advanced within sight of Constantinople. Andronicus invited from the west for his assistance, a motley multitude of Catalans, who defeated the Turks in 2 great battles, and then became not less pernicious and dangerous to the empire than the Turks themselves. The emperor had associated with him in the government his son Michael, who gave battle to the Catalans with the whole force of the empire, after having assassinated their leader. The victory remained with the adventurers,

and the danger from them became now still more imminent. At length, however, partly by force, partly by bribes, partly on account of discord among their chiefs, Andronicus succeeded in driving them from the region of the Hellespont. Michael having died prematurely, his son Andronicus revolted against his grandfather, became his colleague, reduced him to impotence and abdication, and consigned him to a monastic cell, where, after 4 years of decrepitude, the misfortunes of his life were ended by death.

ANDRONICUS CYRRENESTES, an astronomer and meteorologist who probably lived in the 8d century B. C. He caused an octagonal tower to be constructed at Athens, on the different sides of which were sculptured images of the several winds, and on the summit of which stood a revolving Triton, having a wand in his right hand to indicate the point from which the wind was blowing. "The tower of the winds" is still standing.—LIVIVS, the most ancient of the Latin poets, was an Italian Greek, whom the fortune of war had thrown into the hands of the Romans, and made the slave of M. Livius Salinator. His master, after some time, generously gave him his liberty, and with it his own name of Livius. Andronicus then settled in Rome, acquired, at length, a perfect knowledge of the Latin language, and became, ultimately, a voluminous writer of dramatic and other poetry. He is said to have died in the year B. C. 221. But few and brief fragments of his works have come down to us. The ancients entertained very different opinions in regard to their merits. Cicero considered them not worth reading. Horace avows that he would have contemplated their destruction with regret. The best edition of the extant fragments of Andronicus is that of Düntzer, published at Berlin in 1835.—ANDRONIUS of Rhodes, a Peripatetic philosopher who flourished in the middle of the 1st century before Christ. He is chiefly celebrated as the editor of Aristotle's works, to which he gave that arrangement which is, to a great extent, retained in the present editions. He wrote a general work on Aristotle, which contained a complete catalogue of the writings of that philosopher, and commentaries on some of his physical, metaphysical, and logical treatises, all of which have perished.

ANDROS ISLANDS, one of the groups of the Bahamas, deriving their name from their principal island, Andros. They are but slightly inhabited, and the passages between them are intricate and difficult. Andros is chiefly composed of salt-water marshes and fresh-water swamps, in which there are a few elevated oases bearing excellent cedar timber. It has a population of 759, nearly all colored, a school, and the privilege of sending one member to the house of assembly of the Bahamas.

ANDROS, SIR EDMUND, born in England, and famous in the history of America for his unjust and oppressive government. He was governor of New York—in which province he had previously

held a command—from 1674 to 1682, and of New England from 1686 to 1689. He interfered with the liberty of the press, levied enormous taxes throughout New England without competent authority, and required the proprietors of lands to obtain from him new titles at great expense. From these exactions he proceeded, in Oct. 1687, to demand, at the head of his troops, the surrender of the charter of Connecticut, a purpose which was defeated by secreting that paper in an enormous oak, since known as the charter oak. In 1688, he caused an Indian war by his outrages on the tribes on the Penobscot river. On April 18, 1689, the people of Massachusetts having resolved no longer to endure his exactions, and greatly excited by rumors of a massacre intended, deposed and imprisoned Andros. This revolutionary act did not cause any conflict with the British government, since it was followed by the abdication of King James, but resulted in conveying Andros to England for trial, in company with a committee from the colony delegated to substantiate the charges against him. The unwillingness of the English government to either acquit Andros, or, by condemning him, to sanction the revolt of the colonists, prevented any judicial decision in his case. Andros, though in public estimation guilty of tyranny, subsequently was made governor of Virginia, in which position, however, he conducted himself with more moderation. He died in England, 1714.

ANDROSCOGGIN, a county in the S. W. central part of Maine, having for its N. boundary Oxford, E. Kennebec, S. Lincoln, and W. Cumberland counties. It was organized in 1854, and has an area of nearly 4,000 miles. It has a fine water power at Lewiston, the county seat, produced by the junction of the Little Androscoggin and the Androscoggin rivers. Several railroads pass through the county, and give it ready communication with other parts of the state. It has a fine, fertile soil, and in agriculture stands among the foremost in the state. The towns of which it is composed had, in 1850, a population of 25,757.

ANDROSCOGGIN RIVER, called also **AMERISCOGGIN**, a river of Maine, rising in lat. 45° 12' N. long. 71° 15' W., flows into, and with the Margalloway river forms the outlet of Umbagog lake, in Coos county, New Hampshire. It flows easterly for some distance, then southerly, and entering the state of Maine, constitutes the boundary between Kennebec and Oxford, and between Cumberland and Lincoln counties. It joins the Kennebec river at Merry Meeting bay, about 18 miles above the entrance of that river into the ocean. Its length is nearly 150 miles. The tide ascends about 85 miles from its junction with the Kennebec.

ANDROUET DU CERCÉAU, **JACQUES**, a French architect of the 16th century. Having studied in France and Italy, he published in 1576 a work entitled *Les plus excellents batimens de France*, which consists of descriptions

and drawings of some of the most remarkable castles and palaces of the country. Both text and plates are confused and inaccurate. Two years later he was intrusted with the building of a large bridge across the Seine at Paris, to connect the Louvre, the public markets, the halls of justice, and the faubourg of St. Germain. He drew the plan and commenced the work, but did not live to finish it. It was completed in 1604, and still retains its original name of the new bridge (*Pont Neuf*), while in fact it is the oldest in the French metropolis. In 1596, Androuet was chosen by Henry IV. to superintend the building of the gallery intended to form the connection between the Louvre and the Tuileries. He was, moreover, the architect of several residences of the nobility in Paris, which are more noted for profuseness of ornament than beauty of architecture. The time and place of his death are unknown.

ANDRY, **CHARLES LOUIS FRANÇOIS**, a French physician, born at Paris, in 1741, died April 8, 1829. He was the son of a rich druggist of the *Rue des Lombards* in Paris, and was remarkable for his disinterested devotion to his profession, and particularly to the service of the poor. His father left him a fortune of some \$1,500 per annum, which, 50 years ago, was about equal to double that sum now, in Paris, and Andry, being a man of economical and studious habits, without worldly ambition, was abundantly provided for in this world. He was chief physician to one of the hospitals of Paris, and one of the first members of the royal society of medicine established by Senac. He gave the whole of his annual stipend to the destitute poor of the city, and one-tenth part of his own private yearly income beside. Although devoid of ambition and regardless of place and power, he was one of the 4 consulting physicians of Napoleon; and Louis XVIII. gave him the insignia of the order of Saint Michel. Andry was one of the first partisans of Jenner and vaccination, but he was opposed to Mesmer and mesmerism. He was more of a practical physician than a writer, but he has left a good work on hydrophobia, one on the therapeutical effects of the magnet, and a treatise on materia medica. He lived to the advanced age of 88, and died universally beloved and esteemed.

ANDRY, **NICOLAS**, a French physician of controversial celebrity, born at Lyons, in 1658, died May 18, 1742. He was educated for the church, and afterward studied medicine at Rheims and at Paris, where he received his degree of doctor of medicine in 1697. In 1701, he was appointed professor at the college of France, and a member of the committee of editors of the *Journal des Savans*. In 1724, he became dean of the faculty of medicine of Paris. He wrote several works on medical subjects, none of which have much scientific merit, but are remarkable for being tinged with theological controversy, always on the side of

the ruling parties in church and state. He was in favor at court and disliked by his colleagues of the faculty.

ANDUJAR, or ANDUXAR, a town of Spain, at the foot of the Sierra Morena. Here is a whitish clay from which are made jars highly esteemed for the power of keeping water cool in hot weather. The vicinity furnishes an extraordinary abundance of wheat, barley, oil, wine, and honey. It contains several monasteries and 10,000 inhabitants.

ANEAU, or ANNEAU, BARTHÉLEMY, a French poet and prose writer, born at Bourges, near the beginning of the 16th century, died at Lyons, June 21, 1565. He was professor of rhetoric at Trinity college in Lyons, which was thought to incline to Calvinistic sentiments, and to be opposed to the national church. One day as a Roman Catholic procession was passing a stone was hurled at it from a window of the college, and the excited mob immediately rushed into the building and killed Aneau in their rage. Among the works of which he is the author, are *Les Emblèmes d'André Alciat*, *traduits vers pour vers*, *Picta Poesia*, a translation of Sir Thomas More's "Utopia," and several others.

ANECDOTES (Gr. *anekdota*), in the primitive sense of the word, things not previously published. Muratori gives the title *Anecdota Græca* to several writings of the Greek fathers found in the libraries and first given to the world by him. Martens and Durand have given a *Thesaurus novus Anecdotorum*. Becker, Bachmann, Heimbach, and others, have made collections and called them *Anecdota*.—In the popular sense of the word it is used to express a number of small personal narratives. The most important collection of this sort in our language is the "Percy Anecdotes." Arvine's "Cyclopædia of Anecdotes," published in Boston, 1856, is a curious compilation, but of a less elaborate character.

ANEGADA, the most northern island of the Virgin group in the West Indies. Its length is 10 miles, and its greatest breadth $4\frac{1}{2}$. The island belongs to Great Britain, but is of small importance, having but very few inhabitants, who are supported mainly by the shipwrecks which frequently occur, especially on a dangerous reef which extends several miles in a S. E. and S. direction from the E. end of this island. Nearly 70 vessels have been lost on this reef since 1811. Large quantities of salt are obtained from the salt ponds on the island. Some attention is paid to the cultivation of cotton and other agricultural productions, and there is no inconsiderable trade in underwood, which is valued for the gum it contains.

ANEL, DOMINIQUE, a French surgeon, born at Toulouse, in 1679, died in 1780, acquired great fame by his invention of the probe and syringe, still known by his name, also celebrated for his successful treatment of aneurism and fistula lachrymalis. At the beginning of the 18th century he served as surgeon in the Austrian army.

ANELLI, ANGELO, an Italian poet, born in 1761, died in 1830. During the French campaign in Italy he was secretary of Gen. Angera, and for some time held an official position as commissioner of the directory. Subsequently he took to the more congenial calling of professor of elocution at Brescia and Milan. He published anonymously a great number of pieces for the stage.

ANEMOMETER (Gr. *anemos*, wind, and *metron*, measure), an instrument for measuring the force of the wind. Attention was first given to this subject by Dr. Cronne, in 1667, and instruments were contrived by him, and by Wolfius and others in the last century. These have all given place, however, to recent inventions of more perfect construction. The first attempts were to measure the force of the wind by its pressure upon a spiral spring, or by the weight it would raise suspended on a revolving axle. The quantity of water it would evaporate was thought to be proportional to its velocity, and this was made to measure it. A bag of air opening into a glass tube, which was shaped like the letter U, and contained a fluid which by any force acting to compress the bag was forced down one leg and up the other, was another contrivance for the same purpose. Another form of it was to dispense with the bag and turn one extremity of the tube at right angles, so that the wind might blow directly into it and press upon the surface of the fluid. The tube was drawn out to small diameter in the curve at the bottom, so as to check the sudden fluctuations caused by irregular blasts of wind. By means of this simple instrument, Dr. Lind, who invented it, ascertained the force of the wind at different velocities by the height of the column of water raised by it. A gentle breeze, moving at the rate of nearly 4 miles an hour, raises a column of water one-fortieth of an inch, which is equivalent to a pressure of $2\frac{1}{2}$ ounces upon a square foot. A high wind moving $32\frac{1}{2}$ miles per hour raises the column 1 inch, with a pressure of nearly 6½ pounds on the square foot. A column of 3 inches indicates a pressure of $15\frac{1}{2}$ pounds, and a velocity exceeding $56\frac{1}{2}$ miles an hour. At 9 inches the wind is a violent hurricane moving $97\frac{1}{2}$ miles an hour, and exerting a pressure on the square foot of $46\frac{1}{2}$ pounds. The atmospheric pressure being a little over 2,000 pounds on the square foot, or equal to a column of water 33 feet high, the greatest force exerted by the wind is feeble in comparison with this.—A more complicated apparatus was invented by Dr. Whewell, and another by Mr. Osler, both of which have been used in England at the meteorological observatories and government institutions. Both are self-registering, and determine the force of the wind by the number of revolutions of a wind-mill fly, the axis of which by perpetual screws and toothed wheels is connected with the registering pencil. In Whewell's instrument the windmill with its wheels and vane is on a horizontal plate which

revolves on the top of a vertical cylinder. The pencil is attached to a little block of wood or nut, through which passes a screw from the horizontal plate above to a circular rim below the cylinder, all which revolves around the cylinder as the wind changes. A straight rod also goes through the pencil block or nut, up and down which it slides, as the screw turns. According as the wind blows gently or strongly, this screw turns slowly or fast, and carries the pencil down the cylinder at a proportional rate. Its point reaches the surface of the cylinder and marks upon it its position, and as the frame turns with the change of direction of the wind, the course of the wind is registered upon the face of the cylinder. For this purpose it is divided by vertical lines into 16 or 32 equal parts corresponding to the points of the compass. This instrument is deficient in not recording the time during which each wind blows, nor the times of its changes, nor its force at any particular moment. It merely gives the order of the changes, and the entire quantity that blows from each point. This is known by the vertical length of the pencil mark in each division of the cylinders corresponding to the courses. It is defective also by the friction of its machinery. Osler's instrument, though constructed on similar principles, is still more complicated than Whewell's; and cannot well be described without reference to figures. The register is divided by lines into spaces, which represent the 24 hours of the day, and in these spaces are inscribed by pencils, lines, which indicate, one, the direction, another the pressure, of the wind, and a third, connected with a rain gauge, the quantity of rain which has fallen at every hour. The register moves along by clock work under the pencils, and at the meteorological observatory at Greenwich, a new one is employed every day. In the royal exchange in London, one of these instruments is in use with a register made to last a week. By the lines described on the register the integral or quantity of the wind can be calculated, that has blown to each point of the compass during the periods of the observations; and thence the resultant, or average effect of all the winds. The result of such calculations made at Greenwich for the year 1841, was that the various winds averaged a velocity of 18.7 miles an hour, and the quantity moved was equivalent to 167,322 miles of air; and for the year 1842 the average velocity was 18.8 miles an hour, and the quantity 159,950 miles of air. The resultant or average effect was for 1841 the passage of 47,900 miles of air toward E. 28° 30' N.; and in 1842 36,750 miles of air toward E. 27° N. This is equivalent for the former year to a constant current toward E. 28° 30' N., at the rate of 5.4 miles an hour; and in 1842 toward E. 27° N., at the rate of 4.2 miles an hour. The total effect for the 2 years is a constant wind from W. S. W. $\frac{1}{2}$ S. at $4\frac{1}{2}$ miles per hour.—Biram's anemometer is an instrument for measuring and registering the quantities of air which

circulate through the passages of mines. It was invented in consequence of the recommendation of a committee appointed by the British house of commons, that the use of such an instrument should be adopted as a precaution against the explosions in coal mines. It is a disk of a foot diameter, made to revolve when placed in a current of air, and furnished with registering wheels like those upon a gasmeter. Any want of attention on the part of those having charge of supplying the required amount of fresh air is thus readily detected. The coal mines of the United States are too little subject to generate explosive gases in large quantity for such an apparatus to be required in them.

ANEMONE (Gr. *ἀνεμος*, wind; as many species grow in elevated windy places), a genus of the family of *ranunculaceae*, Jussieu. The leaves of the stem are generally ternate, forming an involucre which is more or less distant from the flower; the calyx, corolla-like, with from 5 to 15 colored petals, longer than the stamens; carpels numerous, ending in persistent styles. About 60 species are cultivated on account of their beauty, succeeding best in light loamy soil. They are propagated by division, offsets, and seeds, the green-house species from cuttings in light loam under glass. The colors of the flowers predominate in the following order one over the other; white, yellow, blue, reddish-white, purple, red, striped, whitish, creamy violet. Their recommendations for a place in the garden are a fine dense foliage of beautiful green color; involucre green and distant about $\frac{1}{2}$ from the flower; stem straight, light; flowers globose, petals large, rounded with an unguis (nail) of different color. The native countries of the species are, in order of prevalence, Europe, especially the south, North America, Siberia, the rest of Asia, South America, South Africa. The most valued are the *A. hortensis* and *stellata*, often flowering the second year; easily doubled by culture; flowering from mid-April to the end of May. *A. pavonina*, of Europe; root tuberous; flowers purple; attains 1 foot in height; a variety is crimson with green centre. *A. ranunculoides*, of Europe; about 6 inches high. *A. apennina*, leaves bi-ternate; many narrow, blue petals. *A. narcissifolia*, of Switzerland; 10 inches; umbellated purplish and yellow. *A. vitifolia*, of Nepal, *japonica* and *elegans* (also from Japan), recommend themselves by their strong and tall frame ($1\frac{1}{2}$ to 3 feet); and by the beauty of their flowers. *A. capensis* or *arborea*, stem woody, though but 7 inches high; flowers reddish outside, white inside. *A. pulsatilla*, common in Europe; 10 inches high; flowers large violet; foliage hairy. *A. coronaria*, of Asia Minor, hard to be raised from seed in this country.—A new genus has been separated from the anemone, under the name of *hepatica*, to which the beautiful species (commonly called anemone) belongs, which adorns our forests in early spring; leaves leathery, dark green on

the upper side, liver-brown on the lower; flowers numerous, of all shades of white and bluish purple. Both are allied to the clematida, hellebores, actæas, crow-foots, with which they form the 41 genera of *ranunculaceæ*. The hepatica was employed of old in liver-complaints, from the belief in its sympathy with that organ. Pulsatilla is a much used remedy in the homœopathic materia medica.

ANEMOSCOPE (Gr. *ἀνemos*, wind, and *σκοπεω*, to look), a wind indicator, or weather-cock. It is frequently attached to a spindle, which passes from the vane into any apartment, and there by an index upon a compass dial, points the direction of the wind.

ANERIO. I. FELICE, an Italian musician, born at Rome in 1560, died in 1630. In 1594, after the death of Palaestrina, he succeeded him as composer of the pontifical chapel. A great number of his compositions have been published, and his unpublished pieces have been preserved in the archives of the basilica of the Vatican and the pontifical chapel. II. GIOVANNI FRANCESCO, the brother of the preceding, born at Rome in 1567, and for many years chapel master of the king of Poland and the cathedral of Verona, and subsequently a teacher of music at the Roman seminary. He was one of the first Italian composers who made use of quavers, semi-quavers, and demi-semi-quavers. Many of his musical compositions have been published.

ANEROID. See **BAROMETRE**.

ANET, a town of France, department of Eure-et-Loire. It has the ruins of a castle built by Henry II. for Diana of Poitiers; and in its vicinity is the plain of Ivry, where, in 1590, Henry IV. gained a decisive victory over the armies of the league.

ANEURIN, a British bard, who was the leader of the medieval Britons in the battle of Catterth, and who celebrated in heroic verse the deeds of that day. His work is still preserved in the literature of Wales. He died about 570. It has been supposed that this poet was the same with the historian Gildas.

ANEURISM (Gr. *ἀνεurysmos*, a widening or extension), a term used in surgery to signify a vascular tumor or enlargement, arising from the morbid distension of an artery. It is much more common in some arteries than others, but any artery of the body is liable to it. The corresponding disease and enlargement of a vein is termed varix. An artery is composed of three coats or membranes which form the walls of a strong, elastic, and distensible tube. In a healthy state, the tube maintains a certain diameter under the ordinary impulse of the blood, but when the walls of an artery become diseased, they yield before the constant pressure of the circulating fluid, causing the diseased part to form a bag or tumor. This bag enlarges as the diseased walls distend; and the inner and middle coats, being less distensible than the outer, especially in a diseased state, give way and burst, leaving the outer coat alone to form

the walls of the aneurismal tumor. This admits of a considerable amount of distension; but eventually bursts, and then the unrestrained current gushes out with violence, and the patient dies from loss of blood. Sometimes, however, the dense cellular sheath of the artery, though very distensible, is strong enough to retain the blood for a time, after the rupture of the proper walls of the artery, and the aneurismal sac may thus be very much enlarged, and not give rise to fatal hemorrhage. At times, in fact, this external sac allows the ruptured walls within to partially collapse; the current flows as usual; the blood in the external sac coagulates and forms a clot around the ruptured part beneath; the clot increases from its stagnant state outside the current, and eventually plugs up even the ruptured parts, extending into the diseased artery, and plugging up the tube, thus forcing the current to flow more abundantly through collateral channels, enlarging the walls of neighboring arteries, and forming a spontaneous cure for the original disease. This is a very rare occurrence. The tumor usually enlarges by degrees, pressing upon the nerves and tissues near it, and causing great pain as well as absorption of the soft or bony structures against which it presses. An aneurismal tumor always pulsates strongly, and can generally be distinguished from all other tumors by this characteristic feature. It sometimes happens, however, that an artery pulsating beneath an abscess or an ordinary tumor, causes the latter to simulate, to some extent, this pulsating character, and hence arise at times, errors of diagnosis of a serious character; real aneurisms have been mistaken for abscesses lying upon a pulsating artery, and when opened, under this impression, to let out pus, the blood has gushed out from an aneurismal tumor, and the error has proved fatal. Raynch relates that a friend of his opened a tumor near the heel, not suspecting it to be an aneurism, and the hemorrhage, though stopped at last, placed the life of the patient in great danger. Boerhaave was consulted by a patient on a swelling of the knee, and suspecting it to be an aneurism, cautioned him against having it opened; but it was opened by another person, and the man died on the spot. It is said that Ferrand, the head surgeon of the Hotel Dieu in Paris, mistook an axillary aneurism for an abscess, plunged his bistoury into the swelling, and killed the patient. Such mistakes, however, can hardly happen now, as all the best works on surgery give ample instructions on the means of diagnosis, in this and other important diseases. The cure of aneurism consists in the obliteration of the diseased portion of the artery, by passing a ligature around the sound portion of the vessel at some distance above the locality of the tumor. The merit of this method of cure is due to the celebrated John Hunter, who, observing that the old practice of passing the ligature upon the artery immediately above the tumor often failed, was led to think that the arterial walls

being diseased near the tumor, could not sustain the process of inflammation necessary to cause the tissues to adhere; and consequently he undertook to tie the femoral artery in a case of popliteal aneurism, and was perfectly successful; since then, his method has been universally adopted. The flow of blood is stopped in the large vessels below the ligature; but the secondary vessels communicate with each other so abundantly in all parts of the limb, by what is technically called anastomosis, that the blood soon finds its way through these smaller channels, and enlarges them by slow degress to suit the wants of nutrition.

ANFOSSI, PASQUALE, an Italian composer of some repute in the last century, was born at Naples about the year 1786, and studied composition at the conservatory in Naples, under Sacchini and Piccini, the latter of whom, seeing marks of promise in him, extended a helping hand, and enabled him in 1771 to effect an engagement at the theatre *Delle Dame* in Rome. This proving unfortunate his patron procured him another, and upon the failure of this one also, urged his despairing pupil to summon all his energies for one final attempt. The result of this appeal was the production, in 1773, of *Il Sconosciuto perseguito*, with complete success. Anfossi became famous at once, and two operas which succeeded this were received with equal favor. He then tried his hand on a serious opera, *L'Olympiade*, and failed utterly. The loss of prestige so affected him that he went to Venice, where he found a better appreciation of his works. In 1780 he visited Paris and brought out *Caius Marius* with moderate success, but the *Sconosciuto perseguito* not being properly understood or appreciated, the disappointed composer went to London, where he remained several years, but failed to make any impression. In 1787 he returned to Rome and was fortunate enough to regain the popular favor, which he retained until his death in 1795. He wrote with facility, elegance, and finish, but his works lack the inspiration of genius, and are now scarcely known. His *L'Acaro* is considered the best of his operas.

ANGARA, a large river of Siberia, which flows from Lake Baikal at lat. 51° 30' N. long. 102° 45' E., and pursues a north and west course for about 750 miles, where it is joined by the river Tchadobets. It continues about 800 miles further, where it empties into the Yenisei.

ANGARAES, a town of Peru, capital of a province with its own name, department of Huancavelica. The province contains about 80 Indian settlements, and is 70 miles in length and 12 in width. It communicates by the Apurimac and its affluents and the Amazon with the Atlantic. Whole population, 20,800.

ANGAUM, or ANGAM, an island at the entrance of the Persian gulf, about 8 miles in length and half as wide. Lat. 26° 37' N. long. 55° 54' E.

ANGAZIYA, or ANGAZIJA, the largest isl-

and of the Comoro group, mountainous but extremely fertile in tropical vegetation. The inhabitants, Arabs. The professed religion is Mohammedanism, but fetishism is practised. It is the residence of a British consul.

ANGEL (Gr. *αγγελος*, a messenger, called in Heb. also "Son of God"). In the ancient Jewish books, angels are represented as an order of beings of exalted rank, created by Jehovah, and standing round his throne. Through them the Creator communicates with his creatures, sending them down to the earth to announce and execute his will. They are commonly described as appearing singly, though not always, and in human form. They sit at meat with men, and befriend especially the pious and the just. Angels seem to have been originally personifications of natural forces, or of special operations and ordinances of God. They were not objects of worship with the Jews, but served to fill up the immense gulf between man and Deity, and to keep alive the impressions of the divine power. Angelic appearances are frequent in the oldest Hebrew records, but gradually become faint and few; and in the later writings, we find the dream and the prophetic oracle performing their office as revealers of the divine will.—The belief in angels which is so conspicuous in the Jewish literature of the period succeeding the exile, and in the early Christian books, had little connection with the old Hebrew opinions, but derived its origin from the Persian religion, and was thence adopted by the Jews during their captivity in Babylon. This belief, unlike that of their ancestors, was founded upon the theory of emanations, and intimately associated with the system of Dualism which is ascribed to Zoroaster. It recognized good and evil angels, servants of Ormuzd and of Ahriman, spirits of light and of darkness, countless in number, varying in attributes, and rising in ranks from demons to archangels. They were described as moving between heaven and earth, manifesting themselves under diverse forms, eating and drinking, bearing distinctive names, and having allotted duties as heralds and guardians, superintendents of empires, and protectors of individual men. The introduction of the Chaldean angelology into the Jewish literature of the exile is frequent and bold. See for examples, Chronicles, Zacharias, Daniel, 2 Maccabees, Tobias. Indeed, it became so familiar to the Jewish mind, that it was used to explain some of the transactions recorded in the older annals. The New Testament, likewise, is strongly marked with traces of the oriental doctrine. St. Paul speaks of the celestial hierarchy. The book of the Acts records instances of angelic interposition. In the Apocalypse, each church is presumed to have its own guardian angel. To the angels is assigned a prominent part in the establishment of the Messianic kingdom, and in the proceedings at the final judgment.—The belief in evil spirits, tormentors, and adversaries, and in Satan the head of them all, the prince of the powers

of the air, was current among the Jews in the time of Christ. But the original Persian doctrine was forced to undergo important changes in the Jewish and Christian mind, under the influence of Grecian culture, and of a purer and more exalted conception of Deity. Philo Judæus would not allow the existence of evil angels; and Josephus held that wicked demons were not an independent order of spiritual beings, but were the departed souls of bad men. Still, the oriental belief in angels remained; and among the Jewish sects, the Sadducees alone denied their existence. Repudiating foreign doctrines, they could not receive one that was so strange to genuine Hebrew thought as this was; and doubting of the soul's immortality, they could not entertain a belief in the ministry of departed spirits.

ANGEL, in French, *ange d'or, angelot, angelotus, angelus*, so named from the figure of the archangel Michael and the dragon stamped on one side of it. It was originally a French coin, first struck in 1840, with the French arms on the obverse. It was introduced into England a century later, in the reign of Edward IV., and called angel. It varied in value until the time of Charles I. of England (1625), from 6s., 8s., to 10s. sterling.

ANGELLI. I. BONAVENTURA, an Italian historian, born at Ferrara at the beginning of the 16th century, died in 1576, celebrated for his *istoria della città di Parma ed descrizione del fiume Parma*, which is highly valued by the historical scholars of Italy. II. FILIPPO, an Italian painter, born at Rome toward the end of the 16th century, died in 1645 at Florence. He excelled in landscape painting. His works are very rare, and bring exorbitant prices. III. GIULIO CESARE, an Italian painter, born about 1570, and died in 1630, studied under the Caracci, and achieved some fame by an immense work of art which he executed for the church of St. Augustino at Perugia. IV. GIUSEPPE, a Venetian painter, born in 1715, died toward the end of the 18th century. He studied under Piazzetta, and his paintings are rather remarkable for the fine expression of the head, and the correct drawing of the extremities. V. STEFANO DE', an Italian mathematician of the 17th century, a pupil of Cavalieri, and a warm advocate of the system of Copernicus. He was a professor of mathematics at Padua, and is the author of about 12 works on mathematics and kindred subjects, and was favorably noticed by Montucla, in his "History of Mathematics."

ANGELINA, an eastern county of Texas, bounded on the N. E. by Angelina river, on the S. W. by the Neches, and comprising an area of about 1,000 square miles. Part of the surface is occupied by prairies interspersed with tracts of timber. The soil produces cotton, grain, and grass, and in 1850 yielded 21,985 bushels of Indian corn, 1,017 of oats, 10,716 of potatoes, 174 bales of cotton, 1,190 lbs. of tobacco, 8,975 of rice, and 12,890 of butter. The

public schools numbered 62 pupils. The county was named from Angelina river. Capital, Marion. Pop. in 1850, 1,165, of whom 196 were slaves.

ANGELIO, PIETRO, a distinguished author and poet of the 16th century, born at Barga, Tuscany, near Lucca, in 1517, died at Pisa, Feb. 29, 1596. Some satirical verses brought him into so much danger, that he was obliged to leave Bologna secretly, and take refuge in Venice, where the French ambassador afforded him protection. Soon after, he accompanied the embassy on a mission to Constantinople and Asia Minor, and during several years went through a variety of adventures, not the least curious of which was his appearance at the siege of Nice, in 1543, in the fleet of the admiral Barbarossa. He was finally enabled to return to Tuscany, and shortly after accepted an invitation from Cosmo I. to fill the chair of belles-lettres at the university of Pisa. After occupying this position for 17 years, he took the department of ethics and political economy. His attachment to Cosmo was so great, that in the war with Sienna, when it was found impossible to pay the salaries of the professors at the university, he alone remained at his post, and even armed and organized the students for the defence of the city. In 1575, on invitation of Cardinal Ferdinand de' Medici, Cosmo's successor, he went to Rome. Subsequently, at Florence, he published his chief poem, the *Syriada*, in which are described the subjugation of Syria and Palestine, and the capture of the holy sepulchre by the crusaders.

ANGELIS, DOMENICO DE', an Italian author, born in Lecce, Naples, in 1675, died in the same place in 1718. He accompanied the Neapolitan regiment to Spain as chaplain, and thence he went to Paris, where he was presented to Louis XIV., who nominated him royal historian. After serving a campaign in the pontifical army as chaplain, he obtained a prebendary, but died before he was able to derive much benefit from it. He wrote a number of historical and controversial treatises.

ANGELL, JOSEPH K., the author of several legal works, which have had an extensive circulation, born at Providence, R. I., April 30, 1794, died of apoplexy, May 1, 1857, at Boston. He graduated at Brown university in 1813, and studied law with the late Thomas Burgess. He edited the "United States Law Intelligencer and Review" from 1829 to 1831, and was for several years reporter of the decisions of the supreme court of Rhode Island. He published treatises, between 1824 and 1854, on "The Law of Water-courses," the "Law of Tide Waters," the "Law of Private Corporations," the "Limitation of Actions," the "Law of Carriers," and the "Law of Insurance." At the time of his death he was employed in preparing a treatise on the "Law of Highways." Lord Brougham considered his work on the "Limitation of Actions," the best in the language on that subject.

ANGELN, or ANGLEN, part of a district of the duchy of Schleswig, bounded by the Schley, the Baltic, and the bay of Flensburg. Its largest diameter is about 20 English miles, area about 230 square miles. Pop. 88,000. The soil is fruitful, especially the eastern part; the roads are bad. Fifteen of its parishes belong to the province of Flensburg, and the 18 southern ones to that of Gottorf. It is chiefly interesting as the only place on the continent which has preserved the name of the tribe of Angles from whom (Anglia, Angle-land) England derived its name.

ANGELO, HENRY, a colonel in the British army, born 1780, died Oct. 1852. He was well-known to military men both in England and on the continent as one of the most accomplished swordsmen of his day. He belonged to a family of celebrated fencers, from whom the royal family of England received their tuition in that elegant accomplishment. He extended his sphere of military education by introducing a general drill exercise for the sabre, which was made an army regulation by the Duke of Wellington; he also organized a sword drill for the navy, and invented a bayonet drill for infantry.

ANGELO BUONAROTTI, MICHEL, was born March 6, 1474, at the castle of Caprese in Tuscany, died in Rome, Feb. 17, 1563. He was descended from the noble family of the counts of Canossa, and was, through Count Bonifacio of Canossa, who married a sister of Henry II., allied to the imperial blood. His father, Lodovico di Leonardo Buonarotti Simone, was, at the time of the artist's birth, governor of Caprese and Chiusi, an important fortress in the commonwealth of Florence. Michel began early to justify the prediction of the astrologers that he should excel in those arts that delighted the sense, such as painting, sculpture, and architecture. His nurse was the wife of a stone-mason at the villa Settignano, 8 miles from Florence. At school he neglected his books for the stolen delight of drawing. A pupil of Domenico Ghirlandaio, with whom he became intimate, procured for him studies, and introduced him to his master's house. In his first attempt at painting, made at this time, a copy from a print representing St. Antony beaten by devils, he proved his love for art by coloring his animals as nearly as possible after natural objects. His father seeing how strong was the bent of his genius, reluctantly consented to place him under the care of Ghirlandaio as a pupil for 3 years, beginning April 1, 1483, and the master, an unusual thing, agreed to give him 24 florins for his services. When Lorenzo de' Medici opened a garden in Florence for the use of artists, filled with antique statues and busts, Michel instantly resorted thither, and Lorenzo was so much struck with his first attempt at sculpture, a copy in marble from an old mask, a laughing faun, that he took him under his own patronage, gave him rooms in his palace, and treated him like a son. There the youth studied with

zeal and success until his patron's death in 1492. The son of Lorenzo invited him to continue at the palace, and he did so for a time, but missing the encouragement he had received before, and apprehending political troubles, he spent a little more than a year pleasantly and profitably at Bologna. A successful imitation of an antique, a sleeping Cupid, which he made soon after his return to Florence, and which was bought by Cardinal St. Giorgio for 200 ducats, was the occasion of his first visit to Rome, where he found liberal patrons, and executed several works, the most distinguished of which is the *Pieta*, now standing as an altar piece in a chapel near the entrance of St. Peter's. The election of Pietro Soderini as gonfaloniere of Florence, through a change in the government, induced Michel Angelo to repair thither, and in 18 months he produced from an unshapely block of marble, which another sculptor was supposed to have spoiled, the colossal statue of David which stands in the piazza del Gran Duca. Other works undertaken at this time are unfinished or unknown; but a painting, a holy family, believed until recently to be an authentic work and his only authentic work in oils, is still in the Florentine gallery. The gonfaloniere also commissioned him to paint a large historical picture for the end of a hall in the ducal palace, Leonardo da Vinci being engaged to fill the other end. The subject chosen by Angelo was taken from the Pisan wars: "Florentine soldiers surprised by the enemy while bathing." The sketch was greatly admired and was eagerly studied by the most eminent artists, but the cartoon alone was finished, and that was injured and finally destroyed from neglect. The picture was never commenced, Angelo having left it to go to Rome by invitation of Julius II. the new pontiff, who wished to draw around him all the men of genius. The munificent pope gave the artist unlimited commission to build a mausoleum. The design was drawn and was magnificent, too magnificent for the church it was to adorn. The pope, after some thought, determined to rebuild St. Peter's as a fit covering for his superb monument, which was to be completed according to the original design; and Angelo passed 8 months at Carrara procuring the marble. A misunderstanding with the pope suspended this great work, which though several times undertaken in after years was never finished; the parts designed for it, among them the famous statue of Moses, were finally placed in the church of San Pietro di Vincolo. A reconciliation was effected at Bologna in 1506, and in 1508 the artist, after devoting 16 months to a colossal bronze statue of Julius, which the Bolognese afterward converted into a cannon, returned to Rome expecting to resume his labor upon the mausoleum, but his Holiness had changed his mind, and was now bent upon decorating with frescoes the walls and ceiling of the Sistine chapel, in honor of his uncle Sixtus IV. its builder. With extreme reluctance Michel Angelo consented to execute

this undertaking in an untried branch of art. He was not a painter; Raphael could do it better; but the pope's request was a command; so he made the casting, constructed himself the scaffolding, sent away the fresco painters who had come from Florence, shut himself up alone, and finished the first picture on the ceiling, the "Deluge." The plaster was too wet, and a film obscured the picture; this was easily remedied, and the artist went on. Before the ceiling was half finished, the impatient pope had the scaffolding removed that he might see the effect. Notwithstanding this interruption, the whole ceiling was actually painted in 20 months. Angelo was making studies for the other paintings when his patron died, Feb. 21, 1516, and the work was suspended. He would now gladly have resumed his labor upon the mausoleum under the patronage of the deceased pope's nephew, but Leo X. occupied him the whole 9 years of his reign in the quarries of Pietra Santa getting out inferior marble for the façade of the church Santa Lorenzo in Florence. At the death of Leo, his cousin, Giuliano de' Medici (Clement VII.), employed him upon the "Medici Chapel" in the same church, a work which consumed the 20 months of Adrian VI.'s reign, and a portion of his successor's. In 1527-'80, Michel Angelo displayed genius of yet another kind, as an engineer, being engaged in fortifying the city of Florence against assaults of the imperial troops. The city fell, and he restored himself to the pope's favor by promising to complete the 2 statues for the Medici chapel. Again he was anxious to resume the monument to Julius II., and again he was prevented by the pope, who ordered him to paint the walls of the Sistine chapel. This was in 1583. After much studied delay, on Angelo's part, who kept privately at work upon his Julian mausoleum, the "Last Judgment" was opened to the public on Christmas day, 1541, Paul III. being pontiff. He afterward completed 2 large paintings, the "Conversion of St. Paul," and the "Crucifixion of St. Peter," for the Cappella Paolina. In the reign of Paul III. this extraordinary man, 70 years old, entered upon a new department of art. San Gallo died in 1546, and he was summoned to succeed him as architect of St. Peter's. This office he held through 5 pontificates, accepting no emolument, and nearly all the time crossed and perplexed by the invidious plots of his enemies. With this stupendous work on his hands, he must also carry forward the Palazzo Farnese, construct a palace on the Capitoline hill, adorn the hill with antique statues, make a flight of steps to the church of the convent of Araceli, rebuild an old bridge across the Tiber, last and greatest, convert the baths of Diocletian into the magnificent Maria degli Angeli. Under Pius IV. St. Peter's was carried up as far as the dome, which was modelled in clay, and carefully executed on a scale in wood. But the architect had no time to direct it. A slow fever attacked him in Feb.

1563, and in a few days put an end to his life. He was 88 years old. His funeral solemnities were honorable and imposing. His remains, after lying a short time in the church SS. Apostoli, were conveyed to Florence, and deposited in a vault in the Santa Croce. Michel Angelo applied himself to every branch of knowledge connected with his twin arts, painting and sculpture. His acquaintance with anatomy was great, and also with the science of mechanics. He was fond of Dante and Petrarch, and was himself a poet. Always a student, always dissatisfied with what he had done, many of his works were left unfinished; but his fragments have educated eminent men. In disposition he was proud and passionate, but high-minded, not greedy of gold, but princely in his generosity. His mind was full of great conceptions, for which he was ready to sacrifice and forego physical comforts. His spirit possessed a grandeur which lifted him above low passions, and made him respected by the best men. Of his merits as an artist, it is enough to say that Raphael thanked God that he was born in the time of Michel Angelo Buonarrotti.—For a list of Michel Angelo's works, with a detailed account of them, reference may be made to his Life by R. Duppa.

ANGELO DA CARAVAGGIO, MICHEL AMERIGHI, usually known as Caravaggio, from the place of his birth in 1569. His father was a mason. He himself in his boyhood was a paint-grinder for artists in Milan. These artists awakened his genius and love for art, and he made his way to Venice, where he studied the works of Giorgione, whom he imitated in his earlier style. Leaving Venice, he went to Rome and engaged himself to a trading artist, for whom he painted chiefly flower and fruit pieces. Soon wearying of this, he adopted a peculiar style of his own, the naturalist, of which he was the chief master. Caravaggio's life was wild and vagrant. Having killed a companion in a brawl at Rome, he fled to Naples, thence to Malta, where he was knighted. Another quarrel with a person of rank caused him to be thrown into prison. Contriving to escape, he fled to Sicily, but was pursued, assaulted by armed men, and seriously wounded. His friends having procured the pope's pardon for his first crime, he returned to Italy, but on landing at the port of Rome, was arrested by mistake, lost his money and clothes, suffered from inflammation in his unhealed wounds, from heat, anxiety, and exhaustion, and sat down and died near the Porta Escole, on his way to the city. He was 40 years old. His works correspond in character with his life. Peculiar in being exact copies of nature in its rude and common forms, his pictures treat of vulgar, and often repulsive themes, in a bold and sensuous way. His imagination was coarse, his temper gloomy and passionate. But his paintings, however gross in conception, display a grandeur, power, and pathos, which are not altogether the effect of solemn draperies, deep shadows, and

sharp contrasts in color, but are characteristic of a strong poetic nature in the man. Annibale Caracci said of Caravaggio, that "he ground flesh" not pigments. His studies were chiefly made among scenes of low life in Rome, and the atmosphere of low life pollutes every subject he touches. Some of his sacred pieces were so offensively sensual that they were removed from the altars they occupied. Caravaggio's most celebrated work is an Entombment of Christ in the Vatican. A St. Sebastian in the capitol at Rome, and a Supper at Emmaus, in the Palazzo Borghese, are among his masterpieces. A Holy Family, in the same palace, has been much admired.

ANGELONI, LUIGI, an Italian writer, born in 1758, died in 1842. In 1798 he became a member of the government of the Roman republic. After its downfall, he betook himself to Paris, where he became involved in political difficulties, and was imprisoned for 10 months. He published, in 1811, an essay on Guy d'Arezzo, and various political writings. In 1828 he was expelled from Paris, and settled at London, where he continued to publish pamphlets in connection with his political theories.

ANGELUS DOMINI, a short form of prayer, which Catholics are accustomed to recite in honor of the incarnation, at sunrise, noon, and sunset, at the ringing of a bell, called the Angelus bell. This poetical custom originated with the ringing of the bells on the eve of festivals. Pope John XXII. (1327) ordered that at the ringing of the bells on these occasions, all the faithful should recite 3 Ave Marias. The council of Lavaux (1368) ordered that the bell should be rung also at sunrise. The Angelus at noon is attributed by some to Pope Calixtus III. (1456), and by others to King Louis XI. (1473). Mabillon thinks that the Angelus, as now practised, is of French origin, and became general at the beginning of the 16th century.

ANGELUS SILESIUS, whose real name was JOHANN SCHEFFLER, a German philosophical poet, born at Breslau, in Silesia, in 1624, died in 1677. He inclined early to mysticism, and studied the writings of Tauler, and Jacob Böhme. After receiving a medical degree, he travelled through Holland, and became court physician to the Emperor Ferdinand III. Unsatisfied with the Protestant church, in which he had been educated, he embraced, in 1683, the Roman Catholic faith, and the profession of a priest, and at length retired to a cloister in Breslau, where he died. He is the author of a system kindred to that of the mystic pantheists who had been his teachers. According to him, the essence of God being love, God must love continually, and in the highest degree. But he can love nothing less than himself, and can become an object of love to himself only by going out, so to speak, from himself, only by manifesting his infinity in a finite form. This manifestation of himself is man, who is both the image and the essence of God. Thus, he says, "I am nothing without God, and God were

nothing without me." "Nothing exists but thou (God) and I, and when we both exist not, God is no more God, and the heavens fall in." His peculiar faith is mainly expressed in poems, of which he published collections, with the titles of the "Cherub's Guide-book," "Spiritual Pastorals," the "Troubled Psyche," and the "String of Pearls," and which were, for more than a century, widely spread as books of devotion. They have been republished in the present century, and some of them are contained in the "Library of German Poets," by Müller. Angelus wrote a few violent controversial writings, in striking contrast with his poems, which sing of peace, and are marked by deep and gentle feelings.

ANGELY, LOUIS, a German comedian and playwright, born at Berlin in 1788, died there in 1836. He figured for a considerable time as a low comedian upon the theatres of the Baltic provinces, and the German theatre of St. Petersburg. In 1826 he became the lessee of the new royal theatre of Berlin, until 1880, when he retired from the stage, and took to hotel-keeping. He wrote a number of vaudevilles, principally translated or adapted from the French. Some of his pieces are full of drollery, as *Die sieben Mädchen in Uniform* (the Seven Girls in Uniform), *Das Fest der Handwerker* (the Working-man's Holiday), *Die Reise auf gemeinschaftliche Kosten* (the Trip on Joint Account).

ANGER, an abnormal feeling of the mind, caused by receiving an injury or affront, and accompanied with the disposition to chastise the author of it, even though it is excited by an inanimate object. Sometimes, too, the angry man will vent his choler upon himself instead of another. Unfortunately, this is an exception to the general rule, and another individuality is generally the recipient of his anger. The physiological effects are easily visible. The flushed cheek, the rolling eye, the knitted brow, the trembling limbs, the clenched fist, the gnashing teeth, the rapid rush, the incoherent gurgles of the voice, or the terrible bawl, are the outward manifestations of anger. A Frenchman's choler is often pale, an Englishman's almost always purple. History gives us many instances of persons who have worked themselves up into such an excess of passion that they have dropped down dead on the spot. Among them are Valentinian I., Wenceslaus, and Matthias Corvinus, king of Hungary.

ANGERBURG, a circle of Prussia, in the province of Gumbinnen, formerly a part of Poland. The country is level, abounds in lakes and woods, and is, in some parts, swampy. The inhabitants are employed in agriculture, cattle-raising, fresh-water fisheries, &c. It contains 874 square miles, has a population of 81,810, and a capital town bearing the same name.

ANGERMAN, or ANGERMAN-AA, or ANGERMAN-ELF, a river of Sweden, rises in the Kultsyön lake, on the Norwegian frontier, and after flowing S.E. for 240 miles, empties into the

gulf of Bothnia, 12 miles N. of Hernösand. It is navigable to Sollefå, about 60 miles. It passes through many lakes, and contains numerous islands. At Wada, it is $1\frac{1}{2}$ mile broad. Tourists speak of it as a noble river, Clarke even venturing to say that "the Rhine exhibits nothing grander."

ANGERMANLAND, or **ANGERMANIA**, an ancient province of Sweden, now forming with the ancient Medelpad, the province of Hernösand.

ANGERMUNDE, a district of Prussian Brandenburg; pop. 25,000. The capital of the district is of the same name, situated on Lake Münde and the Berlin and Stettin railway, 43 miles N. E. of Berlin. It manufactures hats, woollens, and hosiery. Pop. in 1887, 3,607.

ANGERS, anciently called **JULIOMAGUS**, and afterward **ANDEGAVIA**, whence its present name, a very ancient city of France, capital of the department of Maine and Loire, situated on the Mayenne, 4 miles from its junction with the Loire, 161 miles from Paris, on the line of the Tours and Nantes railway. It has a college and university, a sail-cloth manufactory, and various manufactories of linen, woollen, cotton, and silk stuffs; also, tanneries, and sugar and wax refineries. In the vicinity are extensive slate quarries. Its chief curiosities are the ruins of a castle of the old dukes of Anjou; a cathedral containing the monument of Margaret of Anjou; remains of a Roman aqueduct; a museum, with 600 pictures; a library of 85,000 volumes; a riding-school, which Peter the Great attended; a school of arts and trades. It is the seat of a royal court for the departments of Mayenne, Sarth, and Maine and Loire. Lord Chatham and the duke of Wellington studied here at a military school now removed. David the sculptor, and Bernier the traveller, were born here. Pop. 46,599 in 1852.

ANGERSTEIN, **JOHN JULIUS**, a Russian merchant, established in London, born at St. Petersburg in 1785, and died in 1822; distinguished himself by his liberal patronage of the fine arts. After his death, his collection of paintings was purchased by the English government for £60,000, as the nucleus of a national gallery.

ANGHIERA, **PIETRO MARTIRE D'**, or, as he is called in English, **PETER MARTYR**, an Italian historian and geographer, was born at Arona, on Lake Maggiore, in 1455, and died in the city of Granada in 1526. He was of noble extraction, and at the age of 22 went to finish his education at Rome, where he was employed as secretary by two cardinals, and during a residence of 10 years formed an intimacy with some of the most distinguished authors of the day. In 1487, he was induced by the Spanish ambassador to accompany him to Spain, where he was graciously received by Queen Isabella of Castile. An ambition for military distinction possessing him about this time, he served in 2 campaigns against the Moors, and then relinquished the profession of arms to enter the

church, for which he had been originally destined. At the invitation of the queen, he soon after opened a school for the instruction of the young nobility, who came in great numbers to profit by his instructions. In 1501, he visited the sultan of Egypt on a mission from King Ferdinand, and took occasion to explore the pyramids, and some of the most striking remains of antiquity. His services were highly appreciated by the king, who obtained for him the title of apostolic prothonotary, and in 1505 made him prior of the church of Granada. Charles V. afterward presented him with a rich abbey. The historical works of Peter Martyr are among the best sources of information that we possess respecting the important age in which he lived. He was an industrious and rapid writer, and his works, though somewhat inelegant in style, are accurate records of events, and abound in intelligent criticism. Modern historians make frequent reference to his writings, and Prescott, in his history of Ferdinand and Isabella, acknowledges his obligations to this voluminous author for many interesting details of the history of the Spanish court. His literary remains consist, first, of his *Opus Epistolarum*, a collection of letters in 88 books, in which almost every event of public importance from 1488 to 1525, is recorded; secondly, of a history of the New World, entitled *De Rebus Oceanicis et Novo Orbe*, written from original documents furnished by Columbus, and from statements made to the council of the Indies, of which he was a member; thirdly, of a notice of newly discovered islands, and their inhabitants; and fourthly, of an account of his visit to Egypt, under the title of *De Legatione Babylonica*.

ANGILBERT, **SAINT**, a native of Neustria, now Normandy, minister of Charlemagne, and the most distinguished poet of his age, died Feb. 18, 814. He studied under Alcuin with Charlemagne; received Bertha, the daughter of that prince, in marriage; was appointed prime minister of his son, Pepin, who was crowned king of Italy, and after returning to France was intrusted with a portion of the government, and became secretary and minister to the king. Having obtained the consent of his wife, he withdrew from this position of honor to become a monk, and entered the monastery of Centule or St. Riquier, of which, after a few years, he became abbot. He often left his retreat to attend to interests of state or to ecclesiastical affairs, and made 4 journeys to Rome, in the last of which he accompanied Charlemagne and saw him crowned at Rome emperor of the west. Angilbert was a correspondent of Alcuin, and was called the Homer of his time. There remains from him a poem in 68 elegiac verses, addressed to Pepin, king of Italy, upon his return to France after a victory over the Huns; also a poem of 80 verses, celebrating the virtues of Saint Eloi and Saint Riquier, composed on the occasion of dedicating the church of the monastery; a few inscriptions and epi-

taphs, and a history of the administration of the abbees Centule. These writings are marked by an elegance worthy of a later era. By the liberality of the emperor, whom he survived but 20 days, Angilbert was enabled to build 8 large churches during his monastic life.

ANGINA PECTORIS (Lat. *angere*, to suffocate). This disease is so named from a sense of suffocating contraction or tightening of the chest, causing anguish and fear of sudden death. A sudden attack of severe pain in the lower part of the chest, commonly inclining to the left side, and extending down the left arm, is the most prominent symptom of the disease. The pain sometimes affects the right arm, and is often attended with palpitation of the heart and a sensation of fainting; but the latter symptoms are not constant. The pulse is commonly quick, feeble, and irregular, though sometimes very slightly affected. The countenance is pallid, and the expression anxious and depressed. There is no regular interval between the paroxysms; nor distinct warnings of return. The paroxysms come on unexpectedly, and last from a few minutes to half an hour or more. They come on suddenly from slight causes, and often when no immediate cause can be assigned. The health is often tolerably good between the intervals, when first the disease comes on, but by degrees it fails, and various uneasy sensations distress the patient in the intervals of paroxysms. The respiration becomes labored and digestion difficult. The nature of this disease is still involved in some obscurity. It seems to be mainly an affection of the nerves, complicated with symptoms of a rheumatic or a gouty nature, and also with disease of the vessels, as on inspection of the organs after death caused by angina pectoris, the heart and lungs are nearly always found to be diseased, but more especially the heart. The morbid appearances of this organ are most frequently ossification of the small vessels that supply the heart itself, commonly called coronary arteries; ossification of the valves of the heart; excessive accumulation of fat on its external surface; enlargement of its cavities, and change of structure in its muscular substance, which becomes soft and flabby, thin, and easily torn. These changes are regarded as the effects rather than the cause of the disease; although they may be deemed the immediate cause of death when they have reached a certain point of progress. The change in the muscular structure of the heart, is a sort of fatty and flabby degeneration, the most constant morbid feature of the disease; and though the hardening of the coronary arteries and the valves of the heart has been generally termed "ossification," the term is a misnomer; for there is no real ossification, but a hardening and thickening of the parts by earthy deposits, such as are observed in the blood-vessels and in the joints of certain rheumatic and gouty constitutions. The degenerations and morbid appearances of the vessels, valves, and tissues of the

heart, are therefore often quite analogous to those observed in other parts of the body, in patients suffering from gout and rheumatism and certain kinds of aneurisms, with morbid deposits in the distended and thickened walls of the arteries. Still, these symptoms are not constant, and hence the difficulty of correct pathological analysis. Much has been done to ascertain the primary seat and the nature of this disease, but physicians are not as yet unanimous in their opinions. The majority, however, believe it to be primarily a nervous affection; the nerves at fault being those which supply the lungs and the heart. It differs, however, from neuralgia, properly so called, in several most important features, although the sudden violent shooting pains are not unlike those of tic douloureux and other forms of severe neuralgia. In so far as the latter disease may be chiefly caused by swelling and inflammation of the sheaths of the nerves, there is a strong analogy; but careful observation suggests that the gouty or rheumatic diathesis, whatever be the nature and the cause of that peculiar cachexia, lies at the bottom of the disease of the heart, known as angina pectoris; and that the neuralgic pains are no more violent and sudden in the paroxysms of this disease, than they are in gout and certain forms of rheumatism. The seat of the disease, however, renders the same paroxysms more alarming. The nervous system is affected in all forms of cachexia; in scrofula and cancerous degeneration, as well as in gout and rheumatism; in the defective growth of stunted limbs, and the deformities of club-foot or the different varieties of talipes; but something deeper still affects the constitution, where the action of the nerves is primarily thus affected. The blood and nerves are both involved, the functions of nutrition and secretion are perverted, and organic follows functional disease, unless the malady can be arrested in its course, and neutralized in principle. If the action of the nerves alone required attention, electricity might be of service, but no physician of skill, science, and experience, would trust to electricity as a cure for angina pectoris. The nerves must be affected through the mind and through the blood, and this requires that air, food, and water, exercise and rest, clothing and temperature, medicine and personal attention, should be equally and constantly attended to, in severe affections of this nature. Change of air and climate, with cessation from anxious professional or business responsibilities, is often very necessary; and above all, the disease should be treated by a skilful physician in its earliest stages. There is danger in delay.—Angina pectoris seldom affects young people. It most frequently occurs in the meridian of life or in the descending phase of existence. It is much more frequent in the male than in the female. In some places where statistics have been made, 79 per cent. of the cases treated were males, and only 21 females: and 70 per cent. were upward of 50 years of age. When the disease is far ad-

vanced, paroxysms are easily brought on by mental or moral emotions; and this is easily accounted for by the organic disease of the organ most deeply affected by emotional excitement of all kinds, exhilarating or distressing. Absolute rest of body and tranquillity of mind are necessary while the paroxysm lasts. The head and chest should be raised, and the body seated in an easy chair; and where the disease is far advanced, the patient should sleep in this position.

ANGIOLINI, FRANCESCO, an Italian Jesuit and author, born in 1738, died in 1788. He was educated at the university of Bologna, and appointed professor of literature at the Jesuit's college at Modena, whence, on the suppression of the order in Italy and its dispersion throughout Europe, he returned to Verona, and occupied himself with translating the history of Josephus and the tragedies of Euripides and Sophocles. The Empress Catharine of Russia having offered an asylum to the Jesuits within her dominions, he went thither in company with some of his brethren, and was appointed a professor in the colleges of Polotsk, Witepsk, Nihilov, and Moscow. He left a history of his order.

ANGLE, the difference of two directions in the same plane; or the difference of direction of two planes, intersecting each other. A solid angle is the corner formed by several planes passing through one point. The first of these definitions is the principal meaning of the word. Angles are measured either by degrees, or by right angles. A right angle is half as large a difference of direction as that which constitutes an opposite direction; that is, the sides of a square corner make a right angle with each other. A degree is the 90th part of a right angle. Angles less than a right angle are called acute, and those greater are called obtuse.

ANGLES, or ANGLI, an ancient German nation which, after various migrations, settled in Denmark, and thence passed over in great numbers to England, to which they gave their name. Tacitus in his *Germania* mentions this tribe by name. Lendenbrog and Leibnitz (*Scriptor. Rerum Brunsvicens.*) have preserved some fragments of the ancient laws, used in common by the Angli and the Varini. Their name has only been preserved in the district of Schleswig, called Angeln, and history would have let them drop entirely into oblivion, but for the accident that their immigration into Britain gave to the greater portion of the southern part of that island, the name of Angle-land, England. Duller, in his *Deutsches Volk* thus describes the modern Angles or inhabitants of Angeln: The Angles are a thoughtful, intelligent race of men, less open and blunt than the Holsteiners, and more devoted to the useful than to aspirations for freedom, honest withal, and opposed to all false show and pretension. They wish to be considered as Germans and to keep up the German language, although the Danish pronunciation is observable in many

parts of the country. The churches and schools everywhere use the German tongue. Angeln is the border land between the Danish and German speeches. South of the Schley no one speaks Danish. North of Flensburg no German is spoken. In Angeln, which lies between Flensburg and the Schley, both languages are understood; in the northern part both languages are spoken, except by a part of the young people. In the southern part it is only a few of the old people who can speak Danish. The town of Flensburg is almost wholly German, and the German towns impinge into the peninsula further to the north than the German villages.—Ritter describes the Angles as a stout-built, industrious, prosperous race, contributing very scantily to the criminal calendar, and with many of the best traits of the German character.

ANGLESEA, a small island in the Irish sea, on the coast of Wales, from which it is separated by the Menai strait. The Menai strait is remarkable for its fine suspension bridge, one of the earliest and most perfect specimens of this structure. It measures 580 feet between the masonry abutments from which the wires depend, and is 100 feet above the level of the water. The Menai strait is also spanned by the tubular bridge of the Chester and Holyhead railway, one of the great triumphs of modern science and enterprise. Anglesea is remarkable principally for its mineral wealth, the Parys copper mine being one of the richest in the world. It was known to the Romans as Mona, and was the last stronghold of the Druids, of whose religion various cromlechs and other remains are still extant. On the north-west end of the island is the smaller island of Holyhead, whose light-house is so well known to the navigator entering the port of Liverpool.

ANGLESEY, HENRY WILLIAM PAGET, marquis of, a British general, born May 17, 1768, died April 29, 1854. He was the first of the title, his father having been earl of Uxbridge. He received his education at Westminster and at Christ church, Oxford. In 1793 he raised a regiment at his own expense among his father's tenantry in Staffordshire, with which he served in the campaigns in Flanders and Holland. He was an officer throughout the Peninsular war. In 1808 he joined Sir John Moore. He defeated the enemy at Mayaga, and repulsed the French advanced guard at Benvento, where he took General Lefebvre prisoner, and covered Sir John Moore's celebrated retreat, which ended in the battle of Corunna. At Waterloo, where he commanded the heavy cavalry, he headed the terrible British charge that annihilated the French cuirassiers. In this action he lost a leg. In consideration of his public services he was created Marquis of Anglesey. During the trial of Queen Caroline, wife of George IV., he advanced strong opinions (possibly embittered from his own domestic troubles) adverse to the general feeling. Upon one occasion he was surrounded by a crowd, who

insisted on his shouting for the queen. He reluctantly yielded, and called out, "Well then, the queen, and may all your wives be like her!" In 1827, whilst Canning was premier, he became master-general of the ordnance, and in 1828 lord-lieutenant of Ireland. In these offices he was extremely popular from the impartiality of his administration, whilst his firmness secured him the respect of all. In 1828, in a letter to Archbishop Curtis, the Roman Catholic primate of Ireland, he expressed opinions so favorable to Catholic emancipation, that his recall became necessary, and he quitted Dublin Dec. 19, 1828, amid the universal regret of all classes; but on the passing of the emancipation act, he was restored to his post, from which he retired in 1835. In 1846 he again became master-general of the ordnance. He was popular with the people, both for his conspicuous connection with a great historical epoch, and for his estimable personal qualities. He continued in the discharge of his parliamentary duties in the house of lords until the time of his death, and his stately figure riding down to the house, will be long remembered. He married in 1795 the daughter of the fourth earl of Jersey, but was divorced, and again married in 1810 to the daughter of the first earl of Cadogan. He had a numerous issue, and was succeeded by his eldest son Henry.

ANGLING, the art of taking fish by means of the rod, line, and hook. This may be regarded as the general definition of the word; although, now that the taking of fish with the hook has become almost a science, subdivisions have been made in the pursuit; and a practised fly-fisher, who despises and ignores the use of bait of all kind, whether worm, gentle, fish, or paste, even to the deadly kinds composed of various spawn, would hardly be content to hear himself set down as an angler. Angling, as a means of obtaining a supply of animal food from rivers, lakes, and the sea itself, is so old an art that the knowledge of man in history goeth not to the contrary; and that no nation has yet been discovered, from the poles to the torrid zone, to which the fish-hook is not a well-known implement, from whatever rude material it is made. How far it was practised as an amusement by the ancients is doubtful; although, that it was so in some degree, is rendered evident by the anecdote related by Plutarch, that when Antony was angling with Cleopatra in the Nile, she caused her divers to attach salt fish to his hooks, to the great amusement of the eunuchs and parasites of the Alexandrian court. It probably was never a very general or popular mode of recreation with any of the more civilized peoples of antiquity, who, being mostly of southern origin and climate, have never displayed the same fondness, amounting to a passion and almost to a madness, for field-sports, which characterizes the northern, and especially the Norman and Teutonic, races. In England, it early took a firm hold on the popular mind; and has been

practised, and written of enthusiastically by men, and women too, of all classes and in all ages, laymen and churchmen, poets and philosophers, artists and soldiers. One of the earliest books printed in the English language is a small folio republication of the book of St. Alban, issued in 1496 by Wynkin de Worde, and containing a "Treatise of Fishing with an Angle," embellished with a woodcut of the angler. This treatise is generally ascribed to the Lady Juliana Berners, prioress of a nunnery near St. Alban's, the well-known authoress of the first work on "Venerie." Like all volumes on angling, including those of dear old Izaak Walton, and his son Cotton, Sir Humphrey Davy, Chantrey the sculptor, Christopher North, and others whose names are legion, this ancient treatise is full of quaint, poetical, meditative thoughts, such as seem at all times to have seized the minds of the quiet and solitary angler. The style is redolent of the sweet sounds of nature, the murmuring of the stream among the pebbles, the whispering of the breeze in the tree-tops, the song of birds, the lowing of distant herds, the cooing of ringdoves, and all the pleasant voices of the country, which bear so mellow a burthen to the rural poems of the English language, and to this it is that may be ascribed the fondness of readers, who are not themselves anglers, for volumes dedicated wholly to this art, which one would imagine interesting only to those concerned in the sport. In England, then, as the science and art of angling, as an amusement, seems to have had, if not its origin, at least its first development, so it has continued to be practised, to be studied, and to be improved, to the greatest degree of thoroughness and perfection. Sciences of all kinds, zoology, entomology, botany, chemistry, have been pressed into the service of the angler; mechanism of the most delicate and ingenious kind is set at work to produce the implements of his trade; the nicely-balanced, tapering, pliant, yet strong rod, one fitted for every phase of the sport, the line of hair, or silk, or grass, or the intestines of the Indian worm, so nicely combined as to unite the maximum of strength and toughness with the minimum of weight; and artistic talents and imitative powers, of no small or secondary order, have been tasked to imitate living things with floss silk, and glittering tinsel and the rare feathers of outlandish birds, and the fur of omnivorous animals; and to create the counterfeit presentments of the thousands of ephemeral insects which come out to dance and sing their brief lives in the sunshine, over the ripples of the waters wherein their larvæ were nursed, and which, when they drop exhausted into the whirling eddies, feed the speckled trout or the silvery dace with rich nutriment. In England, also, laws have long prevailed for the preservation of fish in the tide rivers and inland waters, which are worthy of imitation here, and which must be adopted, if we would not have all the waters of America as void of fish as her forests are becoming, not

only of game, but even of the innocent and useful birds of song. These laws are not exclusive, or partaking of class legislation in their nature, requiring no property-qualification to enable any man of any class to fish where he chooses, provided only that he must obtain the consent of the proprietor of the soil ere he can traverse his fields and wander by his stream-sides, precisely as is the case here, and wherever else the law of property prevails. But they absolutely prohibit the erection of any dams or structures of any kind, which shall prevent migratory fishes from running up to their spawning beds, and down to the sea, on rivers frequented by such fishes; and equally prohibit, under positive penalties of a stringent character, the richest proprietor on his own land, and the poorest peasant on the waste, or on his neighbor's territory, to take or kill any fishes, or to destroy their spawn on their beds and breeding places, during certain seasons of the year, which are termed close-time. The consequence is—that, while ten persons fish in England, for one who fishes in America, and while ten fish are taken, in proportion to the extent of waters, in the former to one in the latter country, the fisheries there are continually increasing in value, and improving in the take of fish; while here rivers, which a few years since were alive with salmon and sea-trout, can now barely offer to the angler a beggarly account of catfish and suckers. In America, except for the lamentable extinction of fish in our rivers, within the last few years, angling would doubtless have been nearly as general and popular, making allowance always for the smaller number here of men of complete leisure who have no occupation beyond the pursuit of pleasure, as it is in Great Britain. It is exactly the same sport, and practised in the same manner, in the waters of both countries; and the fish most eagerly sought by the scientific angler are also identical, in their general character and habits, although not in their specific varieties. We have many more species of excellent fresh-water fish than belong to the eastern hemisphere, which afford the best sport whether to the skilful fly-fisher or to the humbler plodder with ground-tackle, float, bait, and sinker; and, until the last 15 years, we had as much the advantage in the number and weight of the individual fishes of each species or genus, which the angler might hope to take, as in the variety of kinds and species. The fish which have, in all times, been the keenest object of the skilful fisherman's pursuit, both as the best on the board when taken, and as affording the greatest sport to the taker, are those of the salmon family; including the true or sea salmon, the sea trout, the lake trout of several varieties, and the brook trout, which formerly abounded in all the clear flowing brooks of the northern states, and especially, and in the greatest perfection, on the south side of Long Island. All these delicious and game fish may be taken either with the arti-

ficial fly, which is the only way in which the thoroughbred angler will condescend to fish for them, or with bait of various kinds; the live or dead bait-fish, on trolling, spinning, or roving tackle with the red worm, and various pastes of different substances, the most killing of which are those composed of the preserved roes of the identical fish of which one is in pursuit. For fly-fishing, which is as far superior to all other kinds of fishing, as shooting on the wing is to murdering birds on the ground or in their roosts, rods and tackle of a peculiar nature are required. The rod for salmon fishing should be from 16 to 18 feet in length, pliable, elastic and tapering; with a reel capable of containing 100 yards of strong, evenly-plaited hair-line, tapering gradually from end to end, and terminating in a leader of the best round silk-worm gut, to which is attached the foot-length of a large, gaudily-colored salmon fly. The trout fly-rod is of the same general character, but shorter, lighter, and capable of being easily managed with one hand; whereas the salmon rod requires the use of both, and takes a strong and practised man to wield it with effect, through a whole day's fishing. From 10 to 15 feet will be long enough for an ordinary fly-rod, and from 30 to 40 yards of line will be an ample allowance. Trout-flies are much smaller, and usually much more gravely colored, than the salmon flies most in use and considered the most taking; but it is worthy of remark, that, in America, a far larger fly—at least two sizes—may be used with success, than in England; and in some waters, extremely gaudy flies, made of scarlet ibis's feathers and gold-twist seem to attract fish, when nothing else will do so. The object in fly-fishing is to throw the fly well out, and, letting it drop on the water as lightly and naturally as possible, to keep it playing and dancing in the eddies, with motions simulating those of a drowning insect, until it may attract the attention of a lurking trout and lead him to strike at it. He must then be hooked, by a peculiar and indescribable turn of the wrist, which must be acquired by practice, not learned by reading, in order to be successful; after which, since any attempt to land him forcibly with such fine tackle as must necessarily be used in order to elude his observation, would only result in parting the line, if not in breaking the rod, and would end in the loss of both fish and tackle, not to say time and temper, he must be played till he is exhausted, and can be landed safely. The other fish of America, most valued by the angler, are the bass of several varieties, the striped bass, the black bass of the lakes, the rock bass; several varieties of pike, from the gigantic muscalonge of the basin of the St. Lawrence, down to the little Long-Island pickerel, which rarely exceeds 10 inches in length; the pike perch, known as the glass-eye or Ohio salmon, in the western waters; the perch; the carp; and many other species and varieties, of various degrees of size and excellence, down to

the little, many-colored pond-fish, the victim and delight of boy anglers.—The principal differences of bait-fishing, as distinct from fly-fishing, consist in the use of the fish, or the worm, with trolling, spinning, roving, or stationary tackle. Trolling and spinning are both practised with dead fish, to which the angler conveys a motion in the water, by the play of his wrist and line, similar to that of swimming. In the former, the bait-fish is impaled on a hook, the shank of which is weighted with lead, the barbs protruding from his mouth, in which position he is towed up stream, or across stream, by slow jerks tail foremost. In spinning, swivels are used, and a series of small hooks, tied on fine gut, are applied to the bait externally, which is fastened to the line head upward, with a slight curve given to the tail, so that the action of the swivel and the force of the current causes it to play with a rotatory motion in the water, greatly increasing its naturalness, and rendering it far more tempting to the fish. The former of these methods is chiefly used, in still waters, for pike; the latter in swift running streams, where it is equally killing to salmon, trout, pike, or perch of large size. Spinning requires the greater skill and delicacy of the touch, and is therefore the finer sport of the two. Roving is performed with a small live fish, hooked, so as not to injure him seriously, through the dorsal fin or the lip, and suffered to swim about at his own pleasure, within such limits as are accorded to him by the length of line left free below the float, which is always used in this kind of angling. Bottom fishing requires a weighted line, a cork-float, and worm, paste, or shellfish bait; it is adopted for trout and perch fishing in rivers, and for taking many sorts of sea-fish in bays and tideways. There are infinite varieties of this sport, infinite names of different kinds of fishing, and innumerable means and appliances in the way of tackle, which it is, of course, impossible even to enumerate in a work of this description; but the number of specific volumes of instruction on this subject of general interest is so great, and the opportunities of choice and information afforded by the tackle-shops so frequent, that a novice, desiring to inform himself, can hardly go astray.—The following are the titles of a few of the most valuable works on angling, published in England and in this country, within a few years: Scrope's "Days and Nights of Salmon Fishing," "The Book of the Salmon," by Andrew Young, Sir Humphrey Davy's "Salmonia," Pulman's "Vade Mecum of Fly-Fishing for Trout," "Hand-book of Angling," by Ephemera, "The Rod and Line," by Hewett Wheatley, Ronald's "Fly-Fisher's Entomology,"—all English works; to which may be added Izaak Walton's "Complete Angler" (Dr. Bethune's edition), Frank Forester's "Fish and Fishing," Brown's "Angler's Guide," and Lanman's "Adventures,"—all recently published in the United States, and treating especially of American fishing. It will

be hard if the keenest angler cannot find what he desires, from this copious bill of piscatory fare.

ANGLO-SAXONS is a general name given to the Teutonic settlers in the island of Britain, Angles, Jutish, Saxons, and others. It is of modern origin, and has only come into general use since the commencement of this century. It is a compound word and stands in the place of Angles and Saxons. It was quite unknown to the inhabitants of Britain in the middle ages, for, while the Germanic populations of that island eventually called the greater portion of south Britain Angle-land or England and themselves English, Angli, the Celtic populations of Britain and Ireland, the Cymrian, the Caledonian, and the Hibernian, called their Teutonic neighbors Sassenagh or Saxons. Their language was known indifferently by the name English or Saxon, but never Anglo-Saxon. Modern writers, however, have preferred the latter term; thus we have the Dane Rask's great work *Angelsk Sproglaere*, and Bosworth's "Anglo-Saxon Dictionary." The Jutes, Angles, and Saxons, came from the country of the lower Elbe, the Weser, and the Schley, and were Low German tribes. A tradition, now generally discredited by critical scholars, makes the immigration commence with Hengist and Horsa, A. D. 449. It is certain that the invaders came over in small bodies, each with a captain at its head, who became the petty king or chief of the new settlement in Britain, by which the Celtic population was either expelled or enslaved. So in the 5th and 6th centuries over almost the whole eastern half of Britain crowds of petty pagan kings were scattered, tracing their descent from Woden or Odin, and living in the aboriginal Teutonic manner, with the creeds, traditional customs, and ideas which they brought with them from the coast-lands and forests of Germany. In the 8th century we see these petty kingdoms consolidated into what is known by the name of the Saxon heptarchy, but which was, in point of fact, an octarchy, to wit: Kent, Essex, Sussex, Wessex, Mercia, East Anglia, Bernicia, and Deira, which afterward made up the kingdom of Northumbria. How these various kingdoms gradually became united into the English nation belongs to the history of England and the English.—A general account of the political and social economy of these Anglo-Saxon kingdoms and of England under the sway of the dynasty of Wessex falls naturally under our present title. At the head of the community stood the king (*kyning*), and his wife the queen (*kwen*). The king held his office partly by hereditary and partly elective tenure; that is to say, the kings were usually but not always chosen from the royal family, but the Witenagemote claimed and exercised the right of choosing the particular person of that family whom they wished to reign. An eldest son was frequently set aside in favor of an uncle or younger brother, or some other prince whom the notables of the

nation thought more capable of leading them. For instance, the great Alfred was chosen to the prejudice of his elder brother's children. The king was liable to deposition by the Witanagemote. This body was composed of the principal thanes, the bishops, and abbots. Guizot, in his "History of Civilization," calls the Saxon constitutions barbarian as contradistinguished from the feudal system in its best developed type. Next to the king comes the eorldorman or governor of a province and his assessor the biashop. The eorldormen were the representatives of the early English monarch in the outlying provinces of Northumbria, Mercia, East Anglia, &c. The Saxon kings of the house of Wessex generally held that province as the crown dominions, and governed it in person. The eorldormen were appointed by the king, and selected from the highest nobility or thanes. They were frequently judged, fined, removed, or banished, by the Witenagemote, which was the supreme political tribunal of the realm. They presided in the half-yearly meeting of the county court, and commanded the militia of the province. They correspond to the German *herzog* and the Latin *dux*. The bishop was the inseparable assessor of the Anglo-Saxon eorldorman, as he also was of the Frankish count, in their respective courts. His duty was to give his opinion where any religious or moral obligation was in question; he would try the validity of wills, the legitimacy of children, the legality of a marriage; would superintend the administration of ordeals, and of oaths to witnesses and compurgators, and have the monopoly of those cases in which an ecclesiastic was complainant or defendant. Beneath the king, eorldorman, and bishop, was the sheriff (*scire-gerefa*), the executor of their decrees, whose bailiwick was confined to his particular shire. In the absence of the eorldorman, he presided in the county court. The cities and boroughs were presided over by the burgh-reeve or port-reeve.—From the administrative we pass to the territorial divisions of the country. The simplest and smallest division was the tithing or tenmen-tale. Every member of the tithing was a guarantee for every other member. If one committed a crime, the tithing was bound to discover and give up the criminal, or to pay compensation for the offence. This system of mutual guarantee was called *frank-pledge* or *forborg-heofod*. Ten or some other number of tithings constituted the hundred, and a certain number of hundreds constituted a shire, into a number of which every Saxon kingdom was divided. To Alfred has been often attributed the division of Wessex or England into shires, but upon no authority except that universal tendency of the unenlightened mind, which loves to attribute every slow growth of time to some favorite legislator, and which makes every ancient custom in Sparta the legislative work of Lycurgus, and in France the achievement of Charlemagne. The ecclesiastical division of Anglia in Saxon times was

analogous to the secular. There was the dean (*decanus*), at the head of his deanery, presiding over 10 clergymen; above him was the archdeacon, corresponding to the *hundredarius*, or chief of the hundred, and above a certain number of archdeacons, was the bishop ruler of his diocese, which was analogous to the earl's shire. From the administrative territorial and ecclesiastical economy of the Anglo-Saxons, we pass to their social classification. Here we find 3 main divisions—the earl, ceorl, and theowe. The earl was the noble, he was also called *thegn* or *thane*, a Teutonic word, which is without doubt the same as the Hiberno-Celtic *tiarna* or dignitary immediately tributary to the petty rights or kings of that island. The ceorl was the simple freeman, the theowe, called also *thrall*, was a slave and a chattel. They were composed in great part of the Celtic population, and aboriginal inhabitants of the island, to which were added criminals, prisoners of war, and debtors of the Saxon stock.—Of Anglo-Saxon jurisprudence we have numerous memorials in the codes or *domboes* which were published in various Saxon kingdoms. The first of these, one of the oldest barbarian codes of law in Europe, is that of Ethelbert king of Kent, A. D. 561. It was followed by Clotaire, Edric, and Wiltred, all kings of Kent, and by Ina king of the West Saxons, after which we have the laws of Alfred the Great, Edward the elder (his son), Athelstan, Edmund, Edgar, Ethelred, Canute, and Edward the Confessor. Some of these were published in plain Saxon, accompanied with a Latin version by Mr. Lambard in the time of Queen Elizabeth, under the title of *Archæionomia*. Dr. Wilkins republished this in his collection called *Leyes Anglo-Saxonice*. Some of their peculiar features may be given in a few lines. Every crime was compensated for in money, or, before the use of money, in cattle. If a freeman committed adultery with another's wife, the adulterer must buy the wronged freeman another wife, or be exposed to the private vengeance or *fæhde* of the injured husband. The blood money or price paid for taking another man's life was the *wer-gild*. But all offences were estimated according to the rank of the person on whom the injury was done. Thus, according to the code of King Athelstan of the 10th century, the *wer-gild* of the king's life is set down at 80,000 *krymas*, or \$1,500 of our money, 15,000 for an *athling* or prince of the blood, 8,000 for a bishop or eorldorman, 4,000 for a sheriff, 2,000 for a *thane* or simple priest, 260 for a ceorl or simple freeman. The distinction most generally preserved in the Anglo-Saxon codes that have come down to us is that between an earl or *thane* and a ceorl. An outlaw was named *wulfshæofod* (wolf's head), and might be slain at pleasure. They had 3 modes of trial, by ordeal, by compurgators, or by witnesses. The compurgators were respectable men who came and swore that plaintiff or defendant was in the right. A man could clear himself by the oath of 12 compurgators. The

trial by compurgators was one in which the side which could swear strongest stood the best chance. Regard was had to the respectability of the parties making oath, and relations of the plaintiff and defendant were excluded. The law of inheritance among the Anglo-Saxons was that of gavelkind, in its earliest and purest form. All the sons shared equally, legitimate and illegitimate, in the father's land. The daughters received nothing. Various law terms (as Hilary term, &c.) now in use in England, can clearly be traced back to Anglo-Saxon times. They are referred to in the codes of kings Ethelred and Canute.—The Anglo-Saxon period of English and Scotch history has attracted much attention from British and German scholars during the last 80 years. Consult Sharon Turner's "History of the Anglo-Saxons," Palgrave's "Rise and Progress of the English Commonwealth," Lappenberg's *Geschichte von England*, and lastly Kemble's "Saxons in England." Another result of this study has been seen in the appearance of a body of men in Britain and America, who in politics and in literature proclaim the merits of the great Anglo-Saxon race, and foresee for it an almost universal ascendancy over the world. The Anglo-Saxonists (if we may use this term) call the British empire an Anglo-Saxon empire, and the United States an Anglo-Saxon confederation. To this school of men are opposed, first, those who raise the banner of the Celtic race; secondly, those who are the advocates of the Latin and Slavonic races; and thirdly, those who disbelieve in the virtue of pure races, and think that civilization is best promoted by men of mixed descent.

ANGLO-SAXON CHURCH. The Teutonic invaders of Britain, after the fall of the Roman empire of the west, were of course pagans, and with the pride of a conquering in presence of a conquered race would not receive Christianity from the Welsh Christians. Pope Gregory the Great sent a solemn embassy of 40 Benedictines to Ethelbert, king of Kent, who had espoused Bertha, a Frankish princess. St. Augustin, known as the apostle of the English, was at the head of it. The king consented to be baptized, 597 A. D., and Augustin was appointed archbishop of Canterbury. From Kent Christianity was propagated among the other Anglo-Saxon kingdoms. In 664 a union of all the churches in Britain was made by the exertions of Theodore, archbishop of Canterbury, and in 668 the services of the church were made uniform over the island. Under Theodore there was an archbishop of York and 15 bishops. During the 8th and 9th centuries the Anglo-Saxon church enjoyed a degree of independence which was not quite canonical. By the aid of Dunstan in the latter part of the 10th century, it was brought into more complete harmony with the Roman See. This church produced the venerable Bede, St. Boniface, the apostle of the Germans, and many others who contributed to the cause of learning

and the spreading of Christianity among the Pagan nations of the north. Its history has been carefully investigated by Soames, author of the "Anglo-Saxon Church" and the "Latin Church during Anglo-Saxon times," and by Lingard, "Antiquities of the Anglo-Saxon Church."

ANGLO-SAXON LANGUAGE AND LITERATURE. The language of Alfred and Bede was a branch of the low German dialects, and resembles the old Frisic, once spoken extensively between the Rhine and the Elbe, and the parent of the modern Dutch. The nouns, adjectives, and verbs of the Saxon were declined, conjugated, and inflected like the Greek, Latin, and German, and unlike the French, Spanish, and modern English. Let us take the Anglo-Saxon noun *ath*, Anglicè oath, and decline it. *Ath* makes *athes* in the genitive singular and *athe* in the dative, *athas* in the nominative plural, *atha* in the genitive, and *athas* in the accusative plural. The verb *willan*, to will, is conjugated, *ic wille*, *thu wilt*, *he willeth*, *we wilton*, *ge wilton*, *he wilton*. *Standan*, to stand, in the preterite is *ic stod*, *thu stodest*, *he stode*, *we stodon*, *ge stodon*, *he stodon*. Jacob Grimm has included the Anglo-Saxon dialects in his *Deutsche Grammatik*. At the same time we can clearly trace no less than 8 distinct dialects in Saxon Britain, the southern, the middle, and the northern. The southern more resembles the old Frisic and Netherlandish dialects, the northern has a greater affinity to the Danish tongue. Almost all our remains are in the dialect that was spoken in the ancient kingdom of Wessex. The processes by which the old Saxon was melted down into the modern English, through what is called by philologists the semi-Saxon and old English periods, pertain rather to the history of the English language. In a succinct *resumé* of what remains to us of Saxon literature, we will introduce specimens of the language both in prose and verse, with translations into modern English, so that the difference between the language of the 19th and that of the 9th centuries may be seen at a glance. The earliest specimens of Anglo-Saxon literature are naturally metrical; we have 8 historical poems, all of which record Teutonic recollections of the continent, and must have been imported from Germany into England. The "Gleeman's Song," as we gather from the poem itself, was written by a bard of the tribe of Mirgings who accompanied his prince into Italy. Its geographical knowledge is curious and valuable to the antiquary. The 2d and 8d historical poems are those on the battle of Finsburgh, and the adventures of Beowulf. Beowulf was a Gothic prince who slays a fiendish cannibal called Grendel, and is destroyed by a frightful worm or earthdrake. The songs of Caedmon, the Northumbrian, who died about 680, are the earliest poems we have whose derivation was not continental. These poems were eminently Christian. They sing the creation, the temptation and the fall, the exodus, the story of Daniel, the torments of the damned, Christ's

harrowing of hell and his ascension and glory. Caedmon's verses had an immense influence for centuries, and called forth many imitators. Milton is supposed to have imitated him in "Paradise Lost." The following passage relates to the destruction of Pharaoh's host in the Red sea:

Folk was aſterd:	(The) folk was afraid:
Gaſtas geomre:	Ghosts murmuring:
Woldon here bleathe:	Would (the) hoſt blithely:
Ac behindan beles:	But behind locked (them):
Streamas ſtōdon:	Streams ſtood:
Wellon wael-benna:	Rolled corpses (of) men:
Heah of heofonum:	High from heavens:
Flood-aga becom:	Flood-fear came in:
Geafon deathe-hweop:	Gave (the) death-whoop:
Hamas hnden:	Homes find:
Wyrd mid waego:	Fate with (the) wave:
Storm up-gewat:	Storm up went:
Wite-rōd gefeol:	(the) puniſhment rod fell:
Hand-weorc Godes.	Hand-work of God.

It will be seen that the Anglo-Saxon verse ran in couplets, and depended for its force mostly upon the alliteration of its words. Here is from Beowulf, the denunciation of some warriors who survived their chief slain in battle.

Hú soecal ſincothego	How ſhall the ſervice of treaſure
and ſwyrdgyfu,	and the gift of ſwords,
eall ēdeldwyn,	all joy of a paternal inheritance,
	all ſupport
ecowrum cynne	fall your kin:
lufen allicean:	of the rights of citizenship
londrihtas mōt	muſt
	every one
thaere maegburge	of your family
monna ſeghwile	go about deprived,
idel hweorfan	when once the nobles
ſiðthan ædellingas	far and wide ſhall hear
feorran gefricgean	of your flight,
feorn eowme,	your diſhonorable deed.
domleſean dæd.	Death is better
Death bið ſella	for every warrior
eorla gehwylcum	than a life of ſhame.
thonne edwiltif	

Of poems of a pagan character we have a vigorous song on Athelstan's victory over the Northern Britons and Scots at Brunanburgh; two pieces commemorating the death of Edgar; and the poem which relates the fall of the chief, Byrthnoth, at Malden, in a battle against the Danes and Norwegians. But the mass of Anglo-Saxon poetry was religious, such as metrical lives of saints, prayers, hymns, and paraphrases of scripture; much was written in the closing era of Saxon times, the 11th century. The noblest relic of all is a metrical psalter, the author of which is unknown. Rhyme is used in a very few relics. Conybeare's "Illustrations of Anglo-Saxon Poetry" is the best work to consult on the subject of Anglo-Saxon poetry. The most bulky and important literary work we possess in Anglo-Saxon prose is that series of chronicles, called incorrectly "The Saxon Chronicle," relating events from the invasion of Cæsar down to the year 1154. They were made in religious houses like the Irish and Russian annals. Nor must the great Alfred be forgotten. The greater portion of his works were translations, but translations in which much of the Latin original was omitted, and much of the Saxon's own inserted. When the Wessex king thought he could give an apter illustration or tell a better

story from his own experience than the classical writer he was translating, he did not hesitate to make the exchange. The most remarkable of his translations are those of Bede, Orosius, and Boethius. The best of his original works are accounts of the voyages of 2 Northmen, Wulfstan and Ohtaere, which were republished by Hakluyt. Translations of the Scriptures are frequent. We have the Psalms by Bishop Aldhelm, the gospel of St. John by Bede; and the Psalms by Alfred and his circle of writers. The translation of the Heptateuch dates from the 10th century, and was, with the single exception of Bishop Ulfphilas's translation of the gospels into the Mosso-Gothic, the earliest of the translations of the Scriptures into the modern languages of Europe. Alfric, archbishop of Canterbury, deserves mention. He has left, among other works, a large stock of homilies or sermons. His authority was often appealed to by the English reformers of the 16th century against the demands of Rome. We also have anonymous treatises on geography, medicine, and medical botany (in which magical spells are the chief remedies), arithmetical problems, collections of riddles, and dialogues. Anglo-Saxon literature is singularly rich in charters, leases, clerical constitutions, wills, and deeds.—An interesting collection of these has been made in the late J. M. Kemble's *Index Diplomaticus Aevi Saxonici*, and in Mr. Thorpe's *Analecta Anglo-Saxonica*. The German Grimm and Leo, and the English Wright, have also done much to revive our knowledge of Anglo-Saxon prose literature. As a specimen of the prose of the 9th century, we give the passage from Alfred the Great's will, in which he manifests his serfs, with an English translation:

And ic bidde on Godes naman and on his haligra, thaet minra maga nān nē yrfwear-da ne geſewene nān naenig cyryll thaet ic foregaeld, me Westsaxena witan to rihte gerehton thaet ic hi mōt laetan swā freo swā theowas, swa thaet ic wille; ac ic for Godes lufan and for minre sǣwle thearfa, wylle thaet hy syn heora freoles wyrtha, hyre cyres; and ic on Godes lifendes naman beode, thaet hy nān man ne brocde, nē mid feoc manunge, nē mid naenigum thingum, thaet his ne mōtan cōſcan ſwylice man ſwylice his wyltan.	And I pray in God's name and his saints' that none of my kinsmen or heirs oppress any of my dependants for whom I paid, and the West-saxon Witan legally adjudged to me, that I might leave them free or slave whichever I would, but I for God's love and for my soul's need, will that they shall have their freedom and their choice; and I in the name of the living God command that no man disquiet them, either by demand of money, or with any other thing, so that they may choose such a man as they please (for an employer).
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ANGOLA, a powerful and populous native kingdom on the west coast of Africa, lying between lat. 8° 20' S. and 19° 20' S., and long. 14° to 18° 30' E. It is about 350 miles long from E. to W., and 60 broad from N. to S., and has an area of about 18,000 square miles; it was discovered by the Portuguese in 1486. These have several factories on the coast, and in the interior, which carry on chiefly the commerce and manufactures of the country. Angola is mountainous, and well watered, the soil fertile, the climate tolerably healthy. Gold, silver, iron, lead, and sulphur, are the chief minerals. The vegetation is of tropical

luxuriance. The fauna and flora contain all the varieties of beasts, birds, reptiles, plants, and flowers known in the tropics; pop. estimated at 200,000; religion, Fetichism; government, a despotism. The monarch is called *imoué*. Capital city, St. Paul de Loando, where there is a Portuguese factory. The natives have few of the negro peculiarities of form or feature. In color they are brown. Blue eyes and red hair are not uncommon. Marked cloth, cowries, red-wood, and iron, are used as money. The natives divide the year into 12 months, but the week has only 4 days. Angola is noted chiefly as a mart for slaves. Many thousands of slaves, brought from the interior, are each year shipped off to Brazil. Its other exports are ivory, gold, and iron.

ANGORA, the ancient Ancyra, a town of Asiatic Turkey, nearly in the centre of Anatolia, 215 miles E. S. E. from Constantinople. It is situated in the midst of a vast and elevated plain, abounding in fruits and pasturage, over which the roving tribes of the Turkomans tend their flocks of sheep, herds of goats, and droves of horses. The beautiful Angora goat, with its silken fleece, is the most curious product of this region. Its hair, which is white and soft, and about 8 inches long, is shorn twice a year, and is much esteemed for fabricating shawls and other dresses. The Angora sheep, too, are peculiar, having very long tails, horizontal ears, and the finest wool. The cats, also, are much larger than ours, with beards like the lynx, and though rarely seen in this country, are common in the houses of Paris. All these animals thrive only within a limited district to the westward of the Halys, and degenerate when removed to a distance. Angora is surrounded by dilapidated walls, and contains a ruinous castle and scattered fragments of old Byzantine, Roman, and even Greek architecture. The ancient city was much embellished by the emperor Augustus, and a monument was here raised to his glory. In the middle ages, it was the scene of an eventful battle between the sultan Bajazet and the Mogul emperor Tamerlane. Its population, formerly supposed to be nearly 100,000, does not now reach to half of that number, the discrepancy being due either to extravagant conjectures in the absence of statistics, or to an actual decrease on account of the oppressions of the late pashas. Nearly one-third of the inhabitants are Greeks and Armenians, who monopolize the trade with the west.

ANGORNO, a town of Borneo, in central Africa, near the western shore of Lake Tchad. Pop. 30,000. Weekly markets are held, at which a very extensive trade is carried on in cotton, amber, metals, slaves, &c., by the crowds who throng hither from all quarters.

ANGOSTURA, or BOLIVAR CITY, an important town of Venezuela, South America, capital of the province of Guiana. It is situated on the right bank of the Orinoco river, about 240 miles from its mouth, in lat. 8° 8' N. long. 68° 55' W., and about 190 feet above the sea

level. The town is well built, and regularly laid out, favorably situated for commercial purposes, and contains a college, a hospital, and a fine hall, in which the second congress of Venezuela was held in 1819, during the session of which, New Granada and Venezuela were united under one government bearing the name of Colombia. Angostura is defended by a fort on the opposite side of the river, which is usually, at this point, about 8,100 feet wide. The exports consist of cotton, cocoa, indigo, hides, sugar, &c. Pop. in 1840, 8,500.

ANGOT, an illustrious French merchant of Dieppe, who lived in the first half of the 16th century. His native town was, at that time, the nursery of bold seafaring men, who vieing with the Spaniards, Portuguese, and English, sailed all seas, and were foremost in establishing fisheries on the coasts of the newly discovered continent of America. When quite young, Angot made trading voyages to Africa and the East Indies. By industry, courage, and enterprise, he secured for himself a large fortune, which he used with liberality and munificence. He was the owner of many merchantmen, which he protected by his own energy. Some of his ships having been captured by the Portuguese, he did not apply to the French government for redress, but himself fitted out a regular fleet, fully provided with soldiers and arms, which entered the Tagus, and blockaded Lisbon. Every vessel coming to that port was intercepted, while both shores of the river were devastated. The king of Portugal, surprised at such an unexpected attack from the French, sent an ambassador to Francis I., who referred him to the merchant of Dieppe. Angot, however, persevered, and forced the king of Portugal to pay a large indemnity for his losses. But this prosperity was not permanent. Unsuccessful speculations brought ruin upon him, and the king of France, to whom he had lent large sums of money, having failed to repay it, Angot spent his last years in destitution. He died in 1551.

ANGOULEME, a city of France, capital of the department of Charente, the birth-place of Margaret de Valois, Balzac, and Montalembert. It is built on an elevated plateau, 200 feet above the river Charente, and has a public library, and a royal college. It has manufactures of paper, linen, cloth, and porcelain, which articles it exports. Pop. 19,000.

ANGOULEME, LOUIS ANTOINE DE BOURBON, duc d', son of the count of Artois, afterward Charles X., and of Marie-Thérèse of Savoy, was born in Versailles, August 6, 1775, died at Goritz, June 8, 1844. When still very young, he emigrated with his father in the early period of the French revolution. Endowed with more honesty than genius, he possessed none of the superior qualities which could have secured to him a place among the many celebrities of that period. The only mention made of him during the great wars raging in Europe at that time is, as leading indifferently well a small body of

French *émigrés*. On the 10th of June, 1799, when at Mitau, he married his cousin MARIE-THÉRÈSE CHARLOTTE of France (Madame Royale), the daughter of Louis XVI. This unfortunate princess, born in Versailles, December 19, 1778, had already gone through the most torturing ordeal when a prisoner in the tower of the temple. In this long and inhuman captivity, the innocent child shared the ill fortunes of her royal parents, who were taken from her one after the other by the hand of the executioner. Nor was she set at liberty after their death. Separated from her young brother, she was kept in close confinement, until exchanged against 4 members of the constituent assembly, who had been delivered up to the enemy by the treachery of Dumouriez. The exchange took place in December, 1795, when the young captive left the dungeon, after having written on the walls as a farewell sentence:—"O God! forgive those who have put my parents to death!" She was taken at first to Vienna; she remained there only a short time, and went soon after to her uncle and nearest relative the count of Provence, then at Mitau, where, as we have stated, she was married to the duke of Angoulême. For many years their union was visited with all the hardships of exile. However powerless, the representative of a principle long cherished in France, and the legitimate heir of a series of kings, seemed to be a source of anxiety to the conqueror who then ruled the destinies of Europe. The count of Provence was obliged to leave Mitau and the dominions of the humiliated emperor of Austria, to seek a refuge at Warsaw, under the protection of the emperor of Russia. The duke and duchess of Angoulême followed. So destitute was the condition of the exiled princes, that more than once in their journey they were deprived even of the necessities of life. Still, they soon had to resume their wanderings. Napoleon's anxious power reached them even at Warsaw. They came back to Mitau, and soon after were compelled to retire to the more hospitable shores of England, the only nation in Europe which did not bend its head under the iron hand of the French potentate. The duke and duchess of Angoulême arrived at Hartwell in the year 1809. They appeared but once at court, and led a solitary life in a quiet retirement. But their destiny underwent a great change when, in 1814, the whole of Europe joined in coalition against the insatiable ambition of Napoleon, and succeeded in carrying the war into his dominions. The efforts of the allies, directed perhaps less against France than against its emperor, resulted in dethroning the latter, and restoring to his place the brother of Louis XVI., under the name of Louis XVIII. Consequently, the duke and duchess of Angoulême now resumed the princely life of their early youth at the Tuileries. On her landing in France, the duchess had expressed her feelings by the auspicious words: "Union and forgetfulness." But the memory of her cruel mar-

tyrdom at the hands of the revolutionary government still interposed itself between her and the French people. Few of them would believe in the complete forgetfulness of one who had suffered so much, nor would they trust to the absence of all revengeful impulses from her heart, when the power of revenge was in her hands. But among the faithful partisans of the Bourbon family, she was an object of peculiar sympathy and respectful admiration. They professed for her an exalted devotion, principally in the S. W. of France, where it was deemed good policy to send her, among the populations which had shown themselves most favorably disposed in behalf of the dynasty. She was in Bordeaux, apparently enjoying all the manifestations of popular devotion, when suddenly the return of Napoleon from Elba exploded all over France like a clap of thunder. The duchess alone attempted to resist, justifying what was afterward said of her, that "she was the only man of the family." While the king, her uncle, retraced his steps toward the land of exile without striking a blow,—while her own husband was escorted to the frontier with contemptuous indifference, she determined to keep the field. The granddaughter of Maria Theresa was resolved to show herself not unworthy of her descent. But her followers did not stand by her. Unlike the indomitable Hungarians, they were not ready to die for their queen, and when Gen. Clausel, without even a battalion, presented himself on the other side of the Gironde, a tricolor flag hoisted upon a stick was enough to rout the royalists of Bordeaux. The duchess submitted to her lot, and for the second time left her native country. Again she returned, when Napoleon, defeated at Waterloo and expelled from France by the allies, was on his voyage to St. Helena. For 15 years the duke and duchess of Angoulême enjoyed the highest princely rank in France. The duke acquired but little military reputation, when, in 1823, as commander-in-chief, he led the French army, which restored Ferdinand of Spain to his throne. When Charles X. became king of France, the duke assumed the title of dauphin, which was abolished afterward, and would have succeeded to the crown but for the revolution of July, 1830. Under the pressure of this new event, he abdicated his rights in favor of his nephew, the young duke of Bordeaux, but to no purpose, and for the third time he had to depart from the kingdom with the other members of the royal family. The exiles embarked at Cherbourg. They were but coolly received in England, where the conquest of Algiers was considered as a blow at British power and interests on the Mediterranean. Nevertheless, they were offered a residence at Holyrood, that old place of the Stuarts, whose destiny had great similarity with their own. After a short stay in Scotland, where the duke and duchess had assumed the more humble title of count and countess of Marnes, the dethroned

Bourbons retired to Prague in Bohemia, and some years later to Goritz in Illyria. At this last place, the son of Charles X. ended his career. He died June 8, 1844, 8 years after his father. Two flagstones bearing a funeral inscription in the humble chapel of the Franciscans, are the only indication of the spot where Charles and his son lie side by side. After the death of her husband, the widow of the former dauphin of France removed to the princely castle of Frohsdorff, near Wiener-Neustadt. The majestic gloom of the old manor seemed to agree with her hopeless adversity. There she died Oct. 19, 1851, attended by the only scion left of the royal family of France, and by some few faithful friends,—a sad example of the instability of human grandeur, and a consoling model of virtue and fortitude in the worst reverses of life.

ANGOUMOIS, the name of an ancient province of western France, with Angoulême as its capital, nearly coinciding with the present department of Charente.

ANGOY, an independent province of Congo, lying on the north bank of the river of that name, at its mouth. It is thinly settled, consisting in great part of forests and swamps. Bomangoi, in the interior, is the capital. Obenga, near the mouth of the river, is the chief trading town, and formerly dealt largely in slaves.

ANGRA, a seaport town on the south side of the island of Terceira, one of the Azores. The town is well built, has wide streets, possesses the best harbor in the islands, and is generally the residence of their governor, as well as the consuls of England, France, and Holland. Its situation is beautiful, being on the side of a hill rising from the water's edge, but the streets, like the inhabitants, are very dirty. The harbor is protected by 2 forts, but, though the best in the Azores, it is exposed to all winds from the S. S. W. by the S. to the E., and, on the approach of a gale from this quarter, vessels are obliged to put to sea for safety. The principal exports are wine and grain. Pop. 10,000.

ANGRAB, a river of Abyssinia, taking its rise in the Dembea, falls into the Tacazze, in lat. 14° 20' N. Its course is about 120 miles.

ANGRI, ELENA D', a well-known contralto singer, is a native of the island of Corfu, where she was born May 14, 1824. The misfortunes of her father compelled her to study music as a profession, and since her 18th year she has sung in public in all parts of Europe. She arrived in this country in the autumn of 1856, to accompany the pianist, Thalberg, on a concert tour throughout the United States. Her voice is a rich contralto, of singular power in the lower register, and she executes her music with correctness and vivacity. She is said to have been an especial favorite with Rossini, Meyerbeer, and Spontini.

ANGUIER, FRANÇOIS and MICHEL, two brothers, famous as sculptors, in the reign of Louis XIV. The sculptures of the triumphal

arch of the Porte St. Denis were the work of Michel, the younger. A group of the Nativity was considered his *chef-d'œuvre*.

ANGUILLA, or SNAKE ISLAND, the northernmost of the British West India islands, the leeward group. It is low, and wooded, but its climate is salubrious; area, 85 square miles. Its chief productions are sugar, cotton, maize, salt, and yams. At its eastern end is an islet called Anguillita. Pop. 2,984, which is said to be remarkably free from vice and crime.

ANGUILLARA, GIOVANNI ANDREA DELL', a famous Italian poet of the 16th century, born at Sutri, in Tuscany, about 1517. He made a free translation, in *ottava rima*, of Ovid's *Metamorphoses*, which is still extensively read in Italy.

ANGUINUM OVUM, the adder stone, supposed to be made by the saliva of a cluster of serpents, and possessed of magical virtue. The superstition was prevalent among the ancient Britons, and still preserves a faint existence among the Welsh peasantry. It was a glass bead used by the Druids, who promised that the possessor would be fortunate in all his attempts. The test of its genuineness was to encase it with gold, and throw it into the river; if it was genuine, it would swim against the stream.

ANGUISCIOLA, SOPHONISBA, a celebrated Italian female painter, was born at Cremona, about 1580, of an ancient family. After executing a number of portraits, and some fine historical pieces, she went to Madrid in 1561, at the invitation of Philip II., and painted portraits of Queen Isabella, and other celebrities of the Spanish court. Constant application brought on blindness in her latter years, without diminishing her fondness for art, and Vandyke, who visited her frequently, was wont to speak with great respect of her knowledge of the principles of art, and to attribute to the effects of her conversations much of his own success as a painter. She died about 1626, at the advanced age of 98. Her sisters, Lucia, Europa, and Anna Maria, also painted, but were less distinguished than Sophonisba.

ANGUS, SAMUEL, an American naval officer, was born at Philadelphia in 1784, died May 29, 1840. He entered the navy at the age of 15, in 1807 became lieutenant, in 1813 master commandant, and in 1818 captain. He was selected by Messrs. Adams and Clay, commissioners of the United States for forming a treaty, to convey them to Ghent. Owing to wounds and injuries received in the service, his mind became impaired, and he was removed from his position in the navy.

ANHALT, one of the oldest German princely houses, recently represented by 8 branches and 8 separate principalities, Anhalt-Dessau, Anhalt-Bernburg, and Anhalt-Köthen. It has an area of 1,017 square miles, with about 160,000 population. This region is mostly a fertile plain, situated between the river Elbe and the Harz mountains. The family trace

their lineage to a certain Esico, a sovereign ruler in the 9th century. They have been generally of martial spirit, and in the history of Germany they boast of various distinguished generals in the service of the emperors and of the kings of Prussia. These 8 branches are again subdivided into smaller ones, and from one of these, Anhalt-Zerbst, came the celebrated Catharine II., empress of Russia. The house of Dessau, as the oldest of the line, has exercised the direction of the general affairs of the 8 families. After the revolution of 1848, the 8 duchies received constitutions, and on May 22, 1853, the principality of Anhalt-Köthen was united to Anhalt-Dessau.

ANHANDUHY-MIRIM, and **ANHANDUHY-GUAZA**, two rivers of Brazil, province of Matto-Grosso, rising in the Serra Galhano, the former lat. $20^{\circ} 30' S.$, the latter in lat. $21^{\circ} 21' S.$ The first is about 150 miles in length, the last about 200 miles. They fall into the Rio Vermelho.

ANHOLT, a small island in the Oattegat, belonging to Denmark. It is about 7 miles in length, and $4\frac{1}{2}$ in breadth, and is surrounded by dangerous reefs and shoals. On the eastern extremity of the island a light-house is placed, and, several miles distant, near the end of a long reef which stretches out from this part of the island, a floating light is stationed from March until the end of December. The inhabitants number about 200, and subsist chiefly by fishing, and the booty they obtain from wrecked vessels. The light-house is in lat. $56^{\circ} 44' 18'' N.$ long. $11^{\circ} 39' 15'' E.$

ANHYDROUS (Gr. *a* privative, and *ὕδωρ*, water), a term applied in chemistry to substances that have no water either mixed or combined with them. Alcohol usually contains more or less water, but when freed from it, it is known as absolute or anhydrous alcohol.

ANICH, PETER, a Tyrolese civil engineer, born in 1728, died in 1766. He was brought up in agricultural pursuits, but his mechanical genius attracting the attention of the Jesuits of Innspruck, they afforded him instruction in mathematics. His progress was very rapid, and his professor recommended him to Maria Theresa, who commissioned him to survey northern Tyrol, a task which he completed within 8 years with remarkable thoroughness, notwithstanding the great physical difficulties, and the impediments which many of his countrymen, unable to appreciate his genius, threw in his way. This map of Tyrol, which the Tyrolese call, in allusion to his humble origin, the peasant's map, obtained for him a pension from the empress.

ANICHINI, LUIGI, an Italian engraver, a native of Ferrara, who lived at Venice in the middle of the 18th century. He acquired fame by the delicacy and precision with which he executed even the minutest objects. Michel Angelo greatly admired his works, and declared that Anichini had brought the art of engraving to its highest perfection.

ANICONS, a small river of Brazil, province

of Goyas, length 200 miles. It rises in the Sierra Escalvada, and falls into the Curumba.

ANIELLO, TOMMASO, contracted to **MASANIELLO**, born at Amalfi in 1622, became a fisherman at Naples, where, when but 25 years of age, he headed a successful revolt against the duke d'Arcos, who had, as viceroy of Philip IV. of Spain, in order to defray the expenses of a war against France, levied a tax on fruit and vegetables, the food of the common people. On July 7, 1647, a dispute in the market-place as to which of two parties should pay the odious tax, collected a crowd, into which Masaniello, who was a great favorite with the people, ran shouting, "No taxes, no taxes, long live the king of Spain, down with the bad government!" After speaking a few eloquent words upon the theme uppermost in all hearts, he was made by acclamation chief of the angry populace, which poured through the streets, demolishing the tax gatherers' houses, burning palaces, opening prisons, and driving the viceroy into the *Castello Nuovo*. An impromptu republic was organized, and Aniello proclaimed "captain-general of the Neapolitan people." After an unsuccessful attempt to make way with Aniello, which resulted in the slaughter of the would-be assassins, the viceroy accepted articles drawn up by the insurgents, which abolished the imposts upon estates, restored the privileges bestowed by Charles V., and granted a general amnesty, the Neapolitans to remain in arms until the articles should have been ratified by the king of Spain. This negotiation having been completed, Aniello threw off the rich robes which he had assumed, declared himself again a fisherman, and knelt at the viceroy's feet. But the people would not suffer him to resign. The next day, after a feast with the duke d'Arcos, he became delirious, whether from the effects of over-good fortune or of poison, and his whole nature changed. For 4 days longer the people obeyed him; but on July 16, 9 days after he became chief, he was assassinated in a convent, where he had taken refuge from their jeers. His body was dragged through the streets, and subjected to all kinds of outrage, and his head sent to the viceroy. The next day head and body were put together by the fickle populace, who, to the number of 80,000, followed the remains to the tomb, where military honors were paid by order of the viceroy. He was massacred as a tyrant, and has since been revered as the liberator of his country, which never afterward fell under the Spanish yoke. Anber's opera of *Masaniello* is founded upon his 9 days' career.

ANILIC ACID (Spanish *añil*, indigo), called also indigotic acid, from being produced by the action of diluted nitric acid upon indigo. Carbonic acid is produced with it, and remains in solution, the anilic acid separating it in light yellowish-white prisms, which are fusible and volatile, and dissolve in 1,000 parts of water. Their composition is represented by the formula $C_{14} H_4 NO_2 HO$. Anilic acid de-

lead a crystallized anilate.

ANILINE, one of the numerous products of the distillation of coal-tar, obtained in the form of a clear oily fluid from the oil of the tar by adding chlorohydric acid, heating and distilling, lime or an alkali being added to retain the acid. The product is redistilled and purified by repeating the process, until an oil is obtained, the boiling point of which is 860° F., and this is then further purified by heating with oxalic acid and adding potash to form the oxalate of potash. It is also obtained by distilling nitro-benzole and other analogous compounds of carbon, hydrogen, and nitrogen; and lastly by heating isatine with potash. Isatine is a product of the action of nitric acid upon indigo, whence the name, aniline, was given by Dr. Hofman, of London, who discovered this substance from the Spanish *añil*, indigo. The composition of aniline is thus represented $C_{12}H_9N$. Its specific gravity is 1.02; its boiling point 320° , and it does not freeze at -4° . It possesses an aromatic taste and a vinous odor, is very volatile, its vapor being of a brown color. Sulphur, camphor, resin, &c., are dissolved by it; with acids it forms crystalline salts. Its presence is detected by the fine violet blue color produced in a solution of chloride of lime, by adding minute quantities of it. This beautiful blue color is produced also by other similar products of coal-tar as well as by those of indigo; and the principle which causes it is probably the same in both. It is therefore not unlikely that coal-tar may be hereafter relied upon to furnish the materials for this color, as also the beautiful red and yellow now produced by madder.

ANIMA MUNDI (soul of the world). One of the first problems of philosophy has been to develop a cosmogony. The earliest speculative solution of the problem appears to have been that the material universe was the product of a blind force distinguished on the one hand from God, or pure immanent Spirit, and on the other from the inert matter on which it wrought. Thus the *anima mundi* was an intermediate power, the Creator, and yet not the Supreme on the one hand, nor the lifeless matter on the other. This idea can be traced in the *παντα πληρη θεων* of Thales, and in the doctrine of Pythagoras, who held that the creative force in nature was to be distinguished from the infinitely perfect Being above it. Undoubtedly the *anima mundi* was of much older birth, and was derived by Pythagoras from Egypt, or Asia. From Pythagoras it passed into the Platonic philosophy. From thence it may be traced into Christian speculation through the Alexandrian school, and has perpetuated itself with slight modifications, now verging toward Pantheism in the Stoic branch of Christian speculation; and again toward a pure monadism in the Aristotelian. Among the philosophers who have under one or the other of these modifications embraced the doctrine of the *anima mundi* may be mentioned Straton of Lampascus,

nelius Agrippa, Paracelsus, and Van Helmont, who sustained it under the name of the *archæus*, and Oudworth, More, and Boyer, who called it plastic nature, *principium hylarchicum*, &c.

ANIMAL. All living organisms are either plants or animals; the former collectively constituting the vegetable, and the latter the animal kingdom. It is very difficult to define the word animal, as all attempts by naturalists have demonstrated; and even a scientific definition distinguishing an animal from a vegetable is scarcely less so. The assertion of Linnaeus, that "plants live and grow," while "animals live, grow, and feel," is probably correct; but it is impossible to verify its correctness as applied to the very lowest animals. The idea also till recently maintained, that all animals have a stomach, or internal digestive cavity, is untenable; since many microscopic animals have no trace of a digestive apparatus. Indeed, there is no part or organ common to all animals. The stomach, the heart, and other parts of the circulatory apparatus, the mouth, and even the head, so indispensable in the higher animals, not only in the lower become modified in form and development, but in the lowest even entirely disappear. Nor can muscular fibres, or nervous filaments, be identified in the latter. Organs, therefore, whose slightest structural alteration may prove fatal in some animals, may be lacerated, or even entirely removed in others, without serious consequences. Some birds even still fly for some time after the head is cut off; and the land tortoise has lived 18 days, and the dragon-fly 6 months, without a head. Some animals may, indeed, be literally cut into pieces, not only with apparent impunity, but each portion in time becomes as perfect an animal as the original one. The green hydra has been divided, experimentally, into 40 parts, with the ultimate result just mentioned.—The changes in form of the same organ in different animals, can merely be alluded to here. The mouth, for instance, usually single, and opening transversely, is sometimes double, triple, or multiple, and modified into a trunk, or sucker, as in many insects. The heart has but 2 cavities in fishes, while there are 3 in reptiles, and 4 in birds and the mammalia. The same type of structure, however, often extends over a vast number of species of animals. All the vertebrate animals have the same typical skeleton; it being modified in the various species to suit their requirements. The bones of the anterior extremities, for instance, are the basis of the arm and hand of man, of the forelegs of quadrupeds and reptiles, the wings of birds, and the anterior fins of the whale.—There are, therefore, no structural peculiarities which will always identify an animal. Nor are our investigations in regard to function, in all cases more satisfactory. Feeding and voluntary motion are certainly characteristic attributes of all but the lowest animals; but some of the latter are endowed with only

a kind of motion of a lower grade than the voluntary, and do not give certain evidence of feeling at all. We shall not, therefore, here repeat the 9 characteristics of animals, enumerated by De Lamarck, since they cannot, without essential modification, be accepted at the present day. It is therefore not surprising, that it was found impossible for a long time to distinguish the lowest animals from the simplest vegetable organisms; and that to these doubtful structures the name of zoophyte, or animal-plant, was given. Hence it is not proposed here to attempt to give a precise definition of the term animal; but some of the more striking particulars which distinguish the animals higher than the *acoelophes* in the classification which follows, from plants, will next be specified. It should, however, be here remarked, in regard to the microscopic animals, or animalcules, that Prof. Agassiz has recently shown that many of them are merely the *ova*, or germs of higher animal forms.—1. An organism manifesting the power of sensation or voluntary motion, or possessing a digestive cavity (stomach), or into whose structure enters the nervous or the muscular tissue, is an animal. But, on the other hand, the impossibility of demonstrating either or all of these characteristics, does not prove the organism to be a plant, as before stated. Beside, some plants, *e. g.* the sensitive plant (*mimosa pudica*), withdraw their leaves from the touch of the hand; but not, as there is every reason to believe, in consequence of either sensation or volition. 2. Albumen is the great nutritive element of animals, while starch is that of plants. Some of the lowest plants (*fungi*) are, however, apparent exceptions to this proposition. Consequently, the chemical composition of the tissues of animals differs from that of plants,—the basis of vegetable structures being cellulose, a compound of carbon, hydrogen, and oxygen, while those of animals contain nitrogen also in addition. 3. It has been stated that plants absorb carbonic acid gas from the atmosphere, and give out to it pure oxygen, while animals precisely reverse the process. Plants actually, in their nutrition and growth, assimilate the carbon of the carbonic acid of the atmosphere, and return its oxygen to the latter; but in the respiratory process they, like animals, consume the oxygen of the air, and return to it carbonic acid gas. By day, however, they give off less of the latter than of oxygen. 4. For the fixation of carbon in the tissues of plants, as just stated, the constant stimulation of light is indispensable. This is not true to the same degree of animals, whose tissues also consist in part of carbon, as has been seen.—In respect to varieties in size, the animal kingdom presents a far wider range than the vegetable kingdom. The extremes in the former are the whale, sometimes 100 feet long, and weighing as many tons, and the animalcule, of some species of which 80,000 individuals may inhabit a single drop of water;

while in the latter, we find, on the one hand, the cocoas of Malabar, 50 feet in circumference, and the talipot of Ceylon, a single leaf of which may shelter 20 men from the rain, and, on the other, the microscopic fungi, as the yeast plant (*torula cerevisia*), or those constituting the mould on decaying substances. Dick calculates that the largest trees of Guiana are 2,985,984,000,000,000 times as large as the rose-leaf plant; while the largest whale is to the minutest animalcule, as 84,560,000,000,000,000 to 1.—The number of species, and probably of individuals, is also far greater in the animal than in the vegetable kingdom. About 70,000 species of plants may be seen in Paris in a single collection. Balbi, 25 years ago, estimated the whole number of known species at 80,000; and it has been supposed that there are about 250,000 species in all, on the globe. On the other hand, there are at least 100,000 species of animalcules alone. Dick estimated the whole number of species of animals at 800,000, and the number of individuals at 24 billions; while the parts and adaptations of these exceed 60,000 billions.—In regard to rapidity of increase, the highest plants vastly excel the highest animals. An elm of average size sometimes produces not less than 158 million seeds. But the lowest animals and plants manifest the greatest power of multiplication. The *bovista gigantea*, a species of fungus, has been known to increase its size more than a million times during a single night; and Ehrenberg speaks of an animalcule which propagates so rapidly that its descendants would, in 4 days, amount to no less than 70 billions.—The scientific study of the animal kingdom constitutes the department of natural science termed zoology. Zoography is merely the description of animals; while zootomy, or comparative anatomy, is the study of their structure, and zoonomy, or comparative physiology, that of their functions.—To facilitate these investigations, a scientific classification of the animal kingdom was first published by Linnæus in 1768, in his *Systema Naturæ*. This was improved by G. Cuvier, who spent 17 years in perfecting his system (1795 to 1812); which, being based upon the structure of animals, is termed the anatomical system. Modifications have also been made by De Lamarck, Virey, Duméril, and De Blainville; but Cuvier's classification is still generally adopted, and will be given here. He divided the animal kingdom into 4 great divisions, viz., I. The vertebrata (those animals having a spinal column), containing 4 classes: mammalia, birds, reptiles, and fishes. II. The mollusca. III. The articulatæ. IV. The radiata. The classes are divided into 72 orders, and the latter into the different genera and species. Only a few of the latter are mentioned here, merely for the sake of illustration to the general reader. Linnæus had been assailed for terming man an animal, and classing him with the monkeys. It will be seen that Cuvier makes man to constitute a distinct order.

I. VERTEBRATA.

CLASS I.—Mammalia, all breathe with lungs, and suckle their young.

- Order I.—Bimana (2 hands). Homo, man. (Only this species).
- " II.—Quadrumania (4 hands). Orang outang, and the various species of monkeys, &c.
- " III.—Chiroptera (hands expanded into wings). The bat, &c.
- " IV.—Sarcophaga (flesh-eating, carnivorous). Lion, tiger, dog, cat, fox, &c.
- " V.—Marsupialia (carry their young in a pouch for a time). Kangaroo, opossum, wombat, &c.
- " VI.—Rodentia (gnawers—long incisor teeth). Beaver, squirrel, rat, mouse, porcupine, &c.
- " VII.—Edentata (toothless). Armadillo, sloth, anteater, &c.
- " VIII.—Pachydermata (thick-skinned). Elephant, rhinoceros, horse and zebra, hog.
- " IX.—Ruminantia (chew the cud). Dromedary, deer, ox, sheep, goat, camelopard, giraffe, &c., &c.
- " X.—Cetacea (whales). Spermacei and Greenland whale, dolphin, &c.

CLASS II.—Aves (Birds).

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|-------|--------------------------------------|--|
| Order | I.—Accipitrines (hawks). | Vulture, falcon, buzzard, owl, kite, eagle. |
| " | II.—Passerines (sparrows, perchers). | Mocking-bird, fly-catcher, martin, swallow, king-fisher, &c. |
| " | III.—Scansorise (climbers). | Woodpecker, parrot, &c. |
| " | IV.—Gallinacee (scratchers). | Pheasant, pigeon, common cock. |
| " | V.—Grallatorise (waders). | Ostrich, stork, heron, flamingo, spoonbill. |
| " | VI.—Palmipede (web-footed). | Penguin, albatross, gull, pelican, cormorant, swan, goose, and duck. |

CLASS III.—Reptilia (creeping animals).

- Order I.—Chelonla (tortoises of various kinds).
 " II.—Champela (alligators and crocodiles).
 " III.—Sauria (lizard, dragon, chameleon).
 " IV.—Ophidia (serpents—boa, viper, &c., &c.)
 " V.—Batrachia (frogs). Frog, toad, salamander,
 proteus, siren, newt.

CLASS IV.—Pisces (fishes).—SUB-CLASS, Bony fishes.

- Order I.—*Acanthopterygia* (spine-finned). Pickerel, perch, mackerel, sword-fish, mullet.
 " II.—*Heteromaleopterygia* (soft fins on abdomen). Carp, pike, flying-fish, salmon, herring.
 " III.—*Lemnomaleopterygia* (soft fins on the throat). Codfish, turbot, plaice.
 " IV.—*Apodomaaleopterygia* (no ventral fins). Electric and other eels.
 " V.—*Lophobranchiata* (hoop-fins). Sea-dragon.
 " VI.—*Plectognathis* (fixed jaws).

SUB-CLASS.—*Chondropterygia* (cartilaginous fishes).

- Order.—Eleutherobranchiata, sturgeon, elephant-fish.
 " Pycnobranchiata, shark, torpedo, sea lamprey, &c.

IL MOLLUSCO.

CLASS			
I.—Cephalopoda (walk on the head).	{ Octopoda (8 feet). Foraminifera (Perforated, with holes).	{ Nauti- lus, &c.	
II.—Gasteropoda (walk on the belly).	{ Pulmonifera (live in the air). helix, &c. Gymnibranchiata (naked gills). Testibranchiata (covered gills). Pectinibranchiata (comb-gills).		
III.—Acapala (headless).—Heterobranchiata.			
IV.—Cirrhopoda .—Peduncular. Bessile.			

CLASS I.—Insecta.

- ASTOMYLA.**
Coleoptera (sheath-winged). Beetles.
Orthoptera (straight-winged). Locust.
Neuroptera (lace-winged). Libellula.
Trichoptera (hairy-winged).
Hymenoptera (membranous-winged). Bee, wasp.
Lepidoptera (feather-winged). Butterflies.
Hemiptera (half-winged). Grasshopper.
Diptera (two-winged). Domestic fly.
Aptera (wingless).
Homoptera (roof-like-winged).
Strepsiptera (twisted-winged).

CLASS II.—Crustacea.

- Brachyoura (short-tailed).**
Macroura (long-tailed).
Stomapoda (footed-mouths).
Isopoda (equal legs).
Branchiopoda (footed-gills).

CLASS III.—Arachnida.

- Thysanoura (fringe-tailed).
Araneida (spiders).
Chelifera (scorpions).
Acarida (mites).

CLASS IV.—Annelida.

- Tubicola.
Dorsibranchia.
Leech, worms, &c.

CLASS I.—Echinodermata.

- Echinoida (sea urchin).
Stelleridæ (star-fishes).
Holothuria.

CLASS II.—*Entosoa*.

- Tape-worm, ascaris, &c.**

CLASS III.—Acalephas (sea nettles).

- Ctenophora (crest-bearers).
 Scyphophora (umbrella-bearers).
 Siphonophora (siphon-bearers).

CLASS IV.—Infusoria.

- Two sub-classes—Polygastrica, Rotifera.**

CLASS V.—*Polyp.*

- Actinia,
Gelatinosa, &c.

Chemical Composition of Animals.—Of the 65 simple chemical elements now (1857) known, only 19 at most, and probably only 17, enter into the structure of animals. These are:

Oxygen	Sulphur	Magnesium	Chlorine
Hydrogen	Phosphorus	Sodium	Fluorine
Carbon	Calcium	Potassium	Strontium
Nitrogen	Iodine	Manganese	Bromine
Copper	Lead	Iron	

The preceding elements variously combined, form numerous compounds, termed the immediate principles of animal structures, of which in the mammalia there are about 90. Of these, some are of mineral origin, as water, common salt, phosphate, and carbonate of lime, &c. Some are formed within the bodies of animals by diassimilation, as urea, uric acid, creatine, &c.; and others still are obtained from vegetable and animal food for the nutrition of the tissues, as albumen, caseine, musciline, fat, &c., and hence exist as constituent elements in the latter. These immediate principles unite to form the tissues of which the parts and organs of animals are constituted. These are, in the vertebrata, as follows:

1. **Epithelial Tissue :**
A. Epidermis and its modifications; nails, hoofs, horns, scales, and shells.
B. Hair and its modifications; bristles, wool, and feathers.
2. **Elastic Tissue ;** its properties much resembling those of gum-elastic.
3. **White Fibrous Tissue ;** in tendons, ligaments, &c., it being very strong and almost totally inextensible.
4. **Ossous and Dental Tissues ;** in bones and teeth.
5. **Arcolar Tissue ;** connecting the various organs together.
6. **Adipose Tissue ;** otherwise called fat.
7. **Cartilages ;** in the joints, those of the ribs, &c.
8. **Muscular Tissue ;** the source of motion.
9. **Nervous Tissue ;** the seat of sensation and intelligence.
10. **Membranes ;** cutaneous (skin), mucous, and serous.
11. **Glands ;** the secretory organs.
12. **Vessels ;** the blood-vessels and the lymphatics.

The tissues of animals are developed directly from the vital fluid, the blood. This, in all the vertebrata, is red; its color being due to the presence of minute cells containing a colored fluid, and which are called the blood-corpuscles. In the invertebrate animals no such cor-

puscles exist, and therefore the blood is colorless. Hence the division of animals into the red-blooded and the white-blooded. The blood of each animal, in the central parts of the body, has its peculiar natural temperature; that of man being 98° to 99° F. The temperature of all animals lower in the scale than birds, is lower than that of human blood, and hence all these are called cold-blooded, while birds and the mammalia are termed warm-blooded animals.—The parts and organs in the different species of animals present an endless variety, from the simplest to the most complex organization. In the human body are 240 bones (including the 32 teeth), and 527 muscles; but of the minute parts, the number is almost beyond computation. There are at least 600 millions of air-cells in both lungs, and 4,000 of Lieberkühn's follicles on a square inch of some portions of the small intestine. Dick computes the parts and adaptations in the human body at 200,600 billions; and asserts that even the *Cossus caterpillar* has a scarcely less complicated structure.—The number of species in the vertebrate orders, probably increases as we descend the scale; though the known species of mammals are more numerous than of birds and fishes, since the first present the greatest facilities for investigation. Of mammals there are about 15,000 known species, of birds, 7,000, of amphibia, 15,000, and of fishes, 8,000.—The fecundity of animals also varies inversely with their elevation in the scale. While mammals produce from 1 only to 8 or 10 young at most at a time, a tench produces 88,000, and a mackerel 546,000 eggs; and Leeuwenhoeck professes to have counted 9,884,000 eggs in a single codfish. Some of the mammals are, however, very prolific. Pennant calculates that the descendants of a single pair of rabbits would, without interference, amount in 4 years to 1,274,840. But external circumstances exert a powerful influence in this regard; *e. g.* the pigeon in its wild state broods but twice a year, but when domesticated, 6, and sometimes even 9 times. In the latter case, a single pair would, in 4 years, produce 14,762 descendants, according to Stillingfleet, and according to Linnæus, over 18,000. The astonishing fecundity of some of the animalcules has already been illustrated. The mammalia alone bring forth their young alive, the duration of gestation being as follows in the following species:

Elephant,	20 months and 18 days.
Rhinoceros,	9 months.
Horse,	11 months.
Ass,	12 months.
Cow,	9 months.
Reindeer,	8 months.
Buffalo,	12 months.
Sheep and goat,	5 months.
Foxes and wolves,	5 months.
Greenland whale,	about 10 months.

The diversity of habits and of functions manifested by the different species of animals, is also equalled only by their diversities of structure, and of the circumstances in which they are placed. Some prey upon other animals;

some live on plants alone, and others still on a mixture of vegetable and animal food. Some evince feelings of attachment, and live in companies or communities; others are unsocial and prefer solitude. Some manifest great strength and great powers of locomotion, while others are fixed to the same spot for life, or are carried from place to place by other forces than their own. Some are remarkable for cunning, sagacity, docility, or intelligence, while others seem entirely devoid of any attribute resembling a psychical endowment.—Obviously there must be a correspondence of the structure of an animal with its habits and functions—*e. g.* a carnivorous animal must have great strength and powers of locomotion; enabling it to overtake, seize, and destroy its victim. It must therefore have largely developed muscles and strong bones; and the teeth and jawbones must be especially strong; and the former of a peculiar form for tearing animal tissues. Such an animal must also have an acute sense of smell, and of hearing, and a corresponding structure of the organs of these 2 senses. It is therefore not wonderful that Cuvier could construct an entire animal from having a few of its bones given, and that Agassiz has deduced the form and structure of a fossil fish from its scales alone. A few of the attributes of animals just mentioned will be exemplified here. I. What is nourishment to one animal may, however, prove to be poison to another. Pallas states that hedgehogs eat abundantly of cantharides without inconvenience. The sphinx of a species of caterpillar feeds on the acrid and poisonous juice of the milk thistle (*tithymalis*), and a certain worm on the leaves of the tobacco plant. Bees feed on, and obtain honey from, the secretions of many poisonous plants; and a kind of buzzard devours the *nux-vomica*. Most animals, however, confine themselves within certain definite limits so far as the sources of their nourishment are concerned. Even the hog, which is usually spoken of as omnivorous, may be mentioned in illustration. It has been found that, while the ox eats 276, and rejects 218 plants, the sheep eats 387 and rejects 141, the goat 449 and rejects 126, the horse 363 and rejects 212, the hog eats but 72 and refuses 171. This animal, therefore, except in cases of necessity, evinces even a superior discrimination in the selection of its food. Some animals never drink at all, drink not being required if the food contain a large amount of water, as is the case with the succulent plants. The gemsbok and the eland (2 species of antelope) are thus adapted to the sandy deserts they inhabit. II. The amount of food required by animals depends upon its quality and their activity. A far less bulk of animal than vegetable food is required; and the greater the activity, the greater the waste of the tissues, and therefore the more nourishment is needed to repair them. The intervals of fasting are therefore determined mainly by this circumstance. While birds are eating most of the time when not asleep,

reptiles pass months in succession without food, in the mean time being in a dormant state. And those of the mammalia which hibernate (as the dormouse, hedgehog, marmot, &c.), also pass the entire winter with little or no food. The sloth also has been known to suspend itself on a pole for 40 days without taking food. But irregularity of supply of food must also be taken into account. The griffin vulture will retain its vigor for 5 or 6 weeks without food; but when opportunity recurs, it does not leave its repast for days, or so long as a morsel of flesh remains; so completely gorging itself that it is incapable of rising on the wing till it has ejected the contents of its crop.—A total privation of food is longest endured without fatal consequences by animals manifesting the lowest vital energy. Fourteen persons, male and female, survived starvation on being shipwrecked for 28 days. An eagle lived 28 days, and several dogs 36 days without food. On the other hand, land tortoises have been kept alive 18 months, and serpents for 5 years without food. The requirements of different animals in regard to their food will determine the limits on the globe within which each species will thrive; and this, together with the temperature required by each, is the principal agency determining the geographical distribution of the various species of the animal kingdom. III. The greatest amount of strength and endurance is possessed by the warm-blooded animals; birds being the strongest of all animals in proportion to their size, except certain insects. The lion is capable of bearing off large animals, and has been known to leap over a broad ditch with a heifer in his mouth, and to break the back of a horse with a single stroke of his paw. The grizzly bear weighing 800 lbs., can drag the carcass of a buffalo weighing 1,000 lbs. to a considerable distance. The camel carries a weight of 1,000 to 1,200 lbs. 80 miles a day, and judges so accurately of its powers that, being accustomed to lie down while loaded, it refuses to rise till a part has been taken off, if too heavy a burden is imposed. The horse is about 6 times as strong as a man, his power being estimated at 420 lbs. at a dead pull. He cannot, however, carry more than 3 times as much weight up a steep hill. A Canadian shrew-mole, whose body was but 4 inches long, being let loose in a room, passed between the legs of some heavy chairs and the wall with which they were in contact, throwing them aside without much apparent effort, and at last hid itself behind a pile of quarto books more than 2 feet high, which it also moved from the wall. This animal also burrows so quickly, that on being let loose in a yard it almost instantly disappears beneath the surface of the ground. On the other hand, the sloth is so averse to all effort, that, when it has satisfied its appetite upon the fruits of trees, it falls to the ground to save itself the labor of descending.—For its powers of endurance the Greenland dog may be mentioned. Five pairs and a leader

are usually attached to a sledge, and they have been known to travel 270 miles in 8½ days.—As instances of fleetness of animals, the kangaroo, the hare, and the antelope may be alluded to. The first progresses by a rapid series of leaps, frequently of 20 feet, its own body being from 5 to 6 feet in length. The hare sometimes passes over 25 feet at a single bound. The antelope is in the Scriptures called the hart and the roe. A species called the springbok bounds to the height of 10 to 12 feet, clearing at each leap from 12 to 15 feet without any apparent exertion. The royal antelope, only 9 inches high, has been known to leap over a wall 12 feet high. Even the sheep in its wild state runs and leaps with great agility, manifesting none of that silliness so generally attributed to this genus in the domestic state. The movements of the dolphin are also very rapid, and it leaps so high out of the water as sometimes to throw itself upon a ship's deck. The ostrich will, at the outset, outstrip the fleetest horse. The nander (allied to the ostrich) is also equally fleet, and when caught kicks so violently as to break even stones. But, perhaps the flight of certain birds best illustrates the present topic. The carrier pigeon flies 26 to 27 miles an hour. The dragoon pigeon has flown from Bury to London, 72 miles, in 2½ hours. And Spallanzani states that 2 swallows flew from Milan to Pavia, 18 miles, in 13 minutes.—The precision and rapidity of muscular action of some animals is also remarkable. The elephant can pick up a pin with its huge trunk. The chamois goat leaps with the greatest precision from point to point on the mountain rocks, alighting on surfaces scarcely large enough for its feet to rest upon, thus eluding the pursuit of other animals. A bird called the wryneck, having a long tongue like the woodpecker, darts forth and retracts this organ with such rapidity that the eye is unable to follow it. Montague states that, when the bird is feeding on ant's eggs, one of the latter, being nearly white and more conspicuous than the tongue itself, sometimes appears to move to the mouth by attraction, as the needle flies to the magnet. The frog also catches flies by movements scarcely less rapid. IV. In respect to the perceptive and even reasoning powers of animals, we must add but a few remarks. No animal possesses more than 5 senses, though some are probably endowed with not more than one—the sense of touch. But we find each sense manifested, in the animal scale, in all grades of perfection. Of intelligence, also, we find great varieties in birds and mammalia, while below the former we hardly find any higher attributes than mere instinct. This, indeed, predominates in most birds, and in the mammalia often assumes the appearance of cunning, artifice, or sagacity. The Egyptian ichneumon, being fond of poultry, feigns itself dead till the birds come within its reach, when it springs upon them; and strangling them, usually contents itself with sucking their blood. There is a species of musk which also feigns

death when caught in the noose set for it, but rapidly escapes the moment it is incautiously untied. The cuckoo neither builds a nest for itself, nor hatches its own eggs. It deposits a single egg in the nest of the hedge-sparrow (and sometimes of the wagtail or the titlark), while the other bird is laying her eggs. This addition to her charge disturbs her arrangements, and during incubation, she throws out her own eggs, or so disturbs as to addle them, to make room for the cuckoo's, but according to Dr. Jenner's observations, she never displaces the latter. When some of her own eggs and that of the cuckoo are hatched, the young cuckoo manages to throw out the young sparrows and the remaining eggs, and thus gets the whole nest to itself. The ostrich surrounds her nest with a trench in which she deposits some of her eggs as the first food of the young ones, to be hatched from the eggs in the nest.—To an animal capable of being educated, though to a slight extent, we cannot deny the possession of intelligence; and judged by this criterion, most of the mammals and some birds must be regarded as possessing this attribute. The adaptation of means to ends, in entirely new circumstances, must also generally be attributed to it rather than to mere instinct. Still, this is a point not always easy to decide. Swallows club together to repel a common enemy; many closing round a hawk, when coming in sight. A martin being caught in a noose of pack-thread, fastened at the other end to a gutter, all the martins in the vicinity were attracted by its cries; and striking the thread with their bills, succeeded in setting him at liberty. The superior intelligence of the elephant is often asserted; though this animal is really less intelligent than the dog, and about equal in this respect to the horse. As tested by educability, as well as by acquired tastes, the quadrumana are far the most intelligent of the lower animals. The black orang, or chimpanzee, on becoming accustomed to wear clothes, becomes fond of them, and any article it cannot put on it will bring to some one for help. It learns to lie in a bed, places his head on a pillow, and pulls the clothes over it, as a man does. The red orang learns to drink coffee and tea, and readily takes wine. A Capt. Methuen had one who was in the habit of stealing his brandy bottle, and who was taught to feed himself with a spoon. A white-throated sapajou became so fond of tea that he would not go to sleep without his usual allowance. When any thing was given him too hard to be broken by his teeth, he looked about for a stone, and tried to crack it by repeated blows with one hand. If this did not succeed, he would find a larger stone, and taking it in both hands would rise upon his hind legs and let it fall, at the same time leaping backward to avoid injuring his toes. He was accustomed to ride on the back of a large mastiff, and to avoid slipping over the dog's head while going down a hill, he made use of his long prehensile tail as a crup-

per; coiling its extremity round the root of that of the dog. The squirrel monkey is fond of insects, and recognizes them even in prints. The lion-tailed baboon is easily trained to a variety of ceremonies, grimaces, and affected courtesies, which he accomplishes in the most serious and perfect manner. Indeed, the other species of monkeys pay this the most profound respect; humiliating themselves in his presence, as if appreciating his superiority and preëminence. The four-fingered monkeys, in order to pass from top to top of lofty trees, too distant for a leap, form a chain by hanging down linked to each other's tails, and swinging to and fro till the lowest catches hold of a bough of the next tree, and draws up the rest. It has even been stated that they sometimes cross rivers upon a bridge formed of a chain of their comrades as just mentioned; the same extending from the tops of 2 high trees on the opposite sides of the stream. V. Finally, the dispositions of animals may be alluded to. Carnivorous animals are mostly solitary in their habits; while many of the herbivorous are socially inclined, and are gregarious. This is the case with the lama and the horse, in the wild state. Camelopards herd together usually in companies of 16. Antelopes are found in herds of 2,000 or 3,000, or in small parties of only 5 or 6 individuals. The males also of antelopes and deer frequently consort together, independently of the females. On the other hand, the conjugal attachment of the stellerine (allied to the dugong) is so great that if the female be taken, the male will dash on shore to her in spite of blows, with the swiftness of an arrow. Steller once saw a male visit his dead mate on the second and third day after she was cut in pieces. Some animals are docile and yielding, others obstinate. The mule is proverbial for the last attribute; though the llama is still more remarkable in this respect. When domesticated, it cannot be made to change its place by any amount of drubbing; and if fatigued, it immediately lies down, and in spite of all efforts to impel it forward, refuses to rise till rested. Some animals are grave or morose, while others are playful, and even have their peculiar amusements. The mocking-bird amuses itself in frightening other small birds, by imitating the screams of the sparrow-hawk. It also has a trick of calling other birds by its imitations of their calls; and in this way sometimes sends the sportsman in quest of a bird, when there is not one of the kind within many miles of him. Mr. Gordon Cumming, in his "Five years of a Hunter's Life in South Africa," speaks of the lion concerts, to which he not seldom had had the pleasure of listening; in which "one of a whole troop assumes the lead, and 2, 3, or 4 more regularly take up their parts, like persons singing a catch." The preacher monkey sometimes mounts the top of a branch and assembles a multitude below; when he sets up a howl so loud and horrible that it would seem at a distance, that a hundred joined in the cry.

At length, he gives a signal with his hand, when the whole assembly join in chorus; but on another signal silence at once prevails, and the orator proceeds with his performance.—The particular classes and orders of animals will be described under the appropriate heads; the 4 classes of the *Vertebrata* forming the articles *MAMMALIA*, *ORNITHOLOGY*, *HERPETOLOGY*, and *ICHTHYOLOGY*—while the *Invertebrata* will be found described under the heads, *MOLLUSCA*, *ARTICULATA*, *ENTOMOLOGY*, *CRUSTACEA*, *ARACHNIDA*, *RADIATA*, *ECHINODERMATA*, *ANIMALCULES*, and *ZOOPLYTES*.

ANIMAL ELECTRICITY, electricity produced in the bodies of animals. Of this electricity there are two kinds, the dynamical or galvanic and the statical. We will examine separately what relates to them both. I. *The production of dynamic electricity.* Few discoveries in science have more importance than the almost accidental observation made by Luigi Galvani, 1786. After having examined the influence of the shock produced by a spark of the electric machine on a frog's leg, Galvani, by that good luck which belongs almost exclusively to men of genius, observed a new and very curious phenomenon. He had skinned a frog, taken away its 2 legs with a part of the spine, and attached the whole to a copper hook, which he had hung upon an iron railing, near his laboratory. He stood watching to see if the electricity of the atmosphere would produce upon these legs the same effect as an electric machine. After some time, having observed no sign of electric influence, he decided to remove the frog's limbs, and while doing so, he perceived the very muscular contraction which he had been vainly expecting to see produced by atmospheric electricity. He soon discovered the condition of this contraction, which was the contact of the moist limbs of the frog with the iron nail. Having substituted for the copper hook and iron nail a metallic arc composed of pieces of these 2 metals, he found that he could produce the contraction at will. For the production of a sudden muscular contraction and of a movement of the limb, it was only necessary to place one end of the arc in contact with a nerve or with the spinal canal, from which the nerves emerge, and to cause the other end to touch one of the muscles of the leg.—Galvani first published these experiments in 1791, in his celebrated work, *De Viribus Electricitatis in Motu Musculari Commentarius*. According to the theory proposed in this work, the muscles chiefly contain the animal electricity which manifested itself in the above experiments, and which he thought was supplied by the nerves and the blood. When the discoveries of Galvani became known, the whole civilized world was seized with admiration, and the curiosity to witness his experiments became universal. Dubois-Reymond says, "that wherever frogs were to be found and where 2 different kinds of metal could be procured, every body was anx-

ious to see the mangled limbs of frogs brought to life in this wonderful way. The physiologists believed that at length they should realize their visions of a vital power. The physicians, whom Galvani had, somewhat thoughtlessly, led on with attempts to explain all kinds of nervous diseases, as sciatica, tetanus, and epilepsy, began to believe that no cure was impossible." Volta soon opposed the views of Galvani, and maintained that the pretended animal electricity was nothing but the electricity developed by the contact of 2 different metals. Galvani replied that with one metal only the muscular contraction was produced, although very feebly. Volta answered that the metals employed were not pure, and that as they had no homogeneity they acted like 2 metals. He showed that even the least physical alteration of a part of a metallic arc of one metal was sufficient to make it act as if it were composed of 2 metals. Galvani, however, succeeded in producing contractions without the intervention of any metal whatever, by merely applying the nerve of a leg on the muscles or establishing a communication between the muscles and the nerve by a piece of moist animal tissue. Alexander von Humboldt took sides with Galvani against Volta. In employing very irritable frogs he found that there were strong muscular contractions, in the following circumstances: 1. When the leg of a frog was bent back against the ischiatic nerve, both parts being still originally connected; 2, when the crural nerve and its muscles were connected by a fragment cut from the same nerve; 3, when a connection was established between two parts of the same nerve by means of some animal tissue. In 1798 Galvani died, and the year after Volta discovered the pile, and as it has been said, he then earned the right of exclaiming, with triumphant scorn, "I don't need your frog,—give me two metals and a moist rag, and I will produce your animal electricity. Your frog is nothing but a moist conductor, and, in this respect, it is inferior to my wet rag." For nearly 80 years the supporters of the theory of animal electricity were silenced by the great discovery of Volta.—In 1825, Nobili, having rendered extremely sensitive the galvanometer (instrument for the measuring of galvanic currents), thought that the current which produces muscular contractions in the frog's legs might be detected by his instrument. He failed, however, in his first attempt; the contractions took place while the needle of his instrument stood still. But after having improved the instrument he succeeded in obtaining a notable deflection of the needle. Unfortunately, however, for the progress of science, Nobili admitted that the current formed in muscles was due to a difference of temperature between the nerves and the muscles. Nevertheless he left to his successors some facts of great importance, the most interesting of which is that when the legs of several frogs are disposed in such a way that the nerves of one touch the muscles of the

other, this kind of pile increases in power with the number of legs. To Prof. Carlo Matteucci belongs the merit of having positively proved the production of galvanic currents in muscles. His researches, those of Dubois-Reymond, of Donné, of Baxter, of Brown-Séguard, of Eekard, and others, have established beyond doubt, that a production of electricity is constantly going on in all the tissues of the living animal economy. The following facts, among others, have been well demonstrated: 1. When the electrodes or conductors of a galvanometer are applied one on one surface, and the other on another surface, of the animal body, a current takes place which moves the needle of the instrument. Thus Donné found a current between the skin and most of the internal membranes; thus Matteucci ascertained that there are different electrical states in the liver and the stomach; and thus also, Baxter found a current between the internal surface of an intestinal vein and any part of the mucous membrane of the bowels. 2. There are electrical currents in muscles and nerves, as we will show hereafter. 3. All the organs of the body yield electrical currents when they have been divided, and when their normal surface and the surface of the section are in communication with the electrodes of a galvanometer.—No one has been more successful than Dubois-Reymond in experimenting upon the production of galvanic or electric currents in the various parts of the body. He owes his success in a great measure to his galvanometer, which admirable instrument, made by himself, is so sensitive that the exceedingly weak current from 2 parts of the skin, even very near each other, is felt by it. The wire wound upon the frame of this apparatus is 5,584 yards, or more than 3 miles long; it forms 24,160 coils around the frame. However, it is not necessary to employ such a powerful instrument to prove the existence of animal electricity, and the ordinary galvanometers may answer the purpose. Before the researches of Dubois-Reymond it was admitted that there were 2 kinds of muscular currents, one belonging to divided muscles and the other to undivided muscles. The first had been very well observed by Matteucci, who ascertained that it is constantly directed from the interior of the muscles to its surface. It exists in the muscles of all the animals which have been examined, and Brown-Séguard has found it in man. As to the other current, that of undivided muscles, it is what Nobili called the proper current of the frog. Dubois-Reymond found that this current exists also in the higher animals, and that its direction varies extremely according to many circumstances. In the limb of the frog this current is directed from the tendon of the principal muscles to their surface. In certain animals the current seems to be weak, although it may be in reality strong, it is because in some muscles the tendon is placed at one extremity and in others at the other, and that sometimes there are 2 tendons.—The

galvanic current of muscles gradually diminishes after the death of animals, or after the separation of the muscles from the living body. According to the researches of Dubois-Reymond, and numerous experiments made by Brown-Séguard, the laws regulating the diminution and the disposition of the muscular current are the same as those of muscular irritability. Between these 2 physiologists, however, there is this difference, that Dubois-Reymond thinks that the cessation of the current takes place at the time a supposed coagulation of the fibrinous liquid of the muscles occurred, producing the so-called cadaveric rigidity; while Brown-Séguard has shown that there is no such thing as this coagulation where cadaveric rigidity supervenes. This last physiologist has discovered that the muscular current, after having completely disappeared (cadaveric rigidity being fully established), may be reproduced, together with the muscular irritability, when an injection of blood, charged with oxygen, is made into the arteries of a limb. This experiment he has performed not only on animals, but on the limbs of guillotined men. He found that the more oxygen there is in the blood employed, the quicker the muscular current and irritability return. This fact, with many others, discovered by Matteucci and Dubois-Reymond, shows that the production of the current depends on the nutrition of the muscles, and particularly on the oxidation of their tissues.—Prof. Matteucci has published many facts to prove that the muscular current is independent of the nervous system; but his experiments are all open to objections. More decisive researches have been made by Brown-Séguard, who has ascertained that in muscles whose nerves have completely and definitively lost their vital properties, currents not only exist during life, but may be reproduced by the influence of injections of oxygenated blood, when they have disappeared after death.—Dubois-Reymond has established as a law that every point in the natural or artificial longitudinal surfaces of a muscle is positive in relation to every part of its transverse surface, whether natural or artificial; and as the tendons, which are conductors, are in communication with the natural transverse surface, it follows that they are negative as regards this surface. This law signifies that the longitudinal surface of a muscle acts like the positive pole of a pile or galvanic battery, while the transverse surface acts like the negative pole. According to this important law, when any point of the longitudinal section of a muscle is connected by a conductor with any point of the transverse section, an electric current is established, which is directed, in the muscle, from the transverse to the longitudinal section. Dubois-Reymond has discovered that the smallest part of a muscle acts in the same way as the whole of it, except that the strength of the current is less and less powerful, the smaller is the part. Each elementary bundle of fibrils in a muscle seems to be like a couple in a galvanic battery, with this

by these elementary bundles are not able to transmit their current so freely as the couples of a real galvanic battery usually are. Dubois-Reymond has found that the amount of electricity generated in muscles must be excessively great, but as it is impossible to make an aggregation of all the elementary currents existing in a muscle, we have not a real measure of the quantity of electricity produced in these organs. —We owe to Matteucci the discovery of one of the most important facts concerning animal electricity. He has found that when a muscle contracts, if there is a nerve placed upon it leading to another muscle, this last contracts also. The contraction of this last muscle Matteucci calls induced. To facilitate the understanding of what we have to say on this subject, we will call induced not only this secondary contraction, but also the muscle that exhibits it, and we will call inducing the first contraction and the muscle in which it takes place. Matteucci has had a great deal of trouble in trying to explain this induced or secondary contraction; his most recent view is that it results from a galvanic discharge from the inducing muscle on the nerve of the induced one. Dubois-Reymond, who has carefully examined the circumstances of this fact, explains it otherwise. He supposes that the current of the inducing muscle passes through the nerve of the induced one, and that when the inducing muscle is set in contraction, the current diminishes, and, as any diminution of a continuous current passing through a nerve is a cause of contraction for the muscle which it animates, it results that the induced muscle contracts. It is known that when a continuous current passes through a nerve there is a contraction in the muscle which it enters, in the beginning of the passage and on its cessation, and also when there is any change in its strength. It is to this last condition that the induced contraction is attributed by Dubois-Reymond, but, if he were right, there should be a contraction in the induced muscle at the time we put its nerve on the inducing one, and also at the time we take it away, and unfortunately for the theory, there is no contraction in these cases, except in peculiar circumstances. We must therefore consider the theory of the distinguished German physiologist as not sufficiently grounded. —Whatever may be the cause of the irritation of the nerve of the induced muscle, when the inducing one contracts, it is certain that this motor nerve is irritated; the same thing takes place, as Matteucci and Brown-Séguard observe, when an excitator or a sensitive nerve instead of a motor is placed upon the inducing muscle; the irritation then causes either a reflex movement or a pain. Brown-Séguard has been led by many experiments to conclude that the irritation of sensitive nerves by the contraction of inducing muscles has a great share in many important physiological and pathological phenomena. Every one knows that, except when we look at the parts of our

movements almost entirely according to the sensations that we receive from our contracting muscles. These sensations have been shown by this physiologist to be chiefly due to the induced irritation of the sensitive nerves at the time the muscles contract. The muscular sense of Sir Charles Bell, or the guiding sensations of Prof. Carpenter, are thus obtained, and so it is with the measure of the distance of objects when looked at with both eyes; the state of our ocular muscles teaches us the distance, and they do it by the irritation they induce in nerves while contracting. According to Brown-Séguard the pain of cramps, that of the contractions of the uterus in parturition, that of the spasm of the sphincters, &c., depends upon an excessive induced irritation of the sensitive nerves in consequence of muscular contractions. Among the other proofs adduced by this physiologist, in support of his view that muscular contractions, normal or pathological, induce irritations in their sensitive nerve fibres, probably by a galvanic discharge, and exactly as an inducing muscle irritates a motor nerve placed upon it,—the following are the most important: He has found that it is electrically just the same thing for the intensity of the irritation of the motor nerve lying upon an inducing muscle, and for the intensity of pain in a case of spasm of the sphincter of the anus, and in a case of contraction of the anterior muscles of the thigh. In these three circumstances, viz., the experiment with the motor nerve, and the two pathological cases in man, we observe, 1, that there is no irritation or no pain, when the inducing muscle has no resistance to overcome when it contracts (it is so after the section of the muscle or of its tendon); 2, that the irritation or the pain increases when the inducing muscle is extended. The known facts that the pain due to the spasm of the sphincter of the anus disappears when it is divided, and that the section of a tendon of a contracted muscle causes the cessation of pain, had not hitherto received any explanation. The researches of Brown-Séguard render now very easy the understanding of the mode in which these facts are produced.—With the help of his very sensitive galvanometer, Dubois-Reymond has been able to prove that the galvanic currents of muscles in man may be rendered evident during a voluntary movement. If the two electrodes of the galvanometer are in communication, one with one hand and the other with the other hand of a man, and if a voluntary movement is made by one of the arms, there is at once a deviation of the needle of the instrument, indicating the passage of a galvanic current. According to the discoverer of this important fact, at the time of the contraction of the muscles of one arm, the current, which existed there, and which was neutralized by a current of equal strength in the other arm, becomes diminished, and therefore the surplus of the other passes out and deflects the needle

of the instrument.—Dubois-Reymond has discovered that nerves are, like muscles, able to afford galvanic currents. The principal law concerning these currents is the same as that of the muscular currents. The direction of the galvanic current of the nerves is from their interior to their exterior, just as it is with the muscles. From all his experiments on the electro-motive power of muscles and nerves, the following conclusions may be drawn:—

1. The muscles and nerves, including the brain and the spinal cord, are endowed, during life, with an electro-motive power.
2. This electro-motive power acts according to a definite law, which is the same in the nerves and muscles, and may be briefly stated as the law of the antagonism of the longitudinal and transverse section; the longitudinal surface being positive, and the transverse section negative.
3. As the nerves have no natural transverse section, their electro-motive power, when they are in a state of rest, cannot be made apparent unless they have previously been divided.
4. The muscles having two natural transverse sections, may show their electro-motive power without being divided. However, the electro-motive power of the undissected muscles is often more or less concealed by the contrary action of a layer situated on the natural transverse section, which Dubois-Reymond calls the *parelectronic layer*. The contrary electro-motive power of this layer may be increased by cooling the animal.
5. Every minute particle of the nerves and muscles acts according to the same law as the whole nerve or muscle.
6. The currents which the nerves and muscles produce in circuits of which they form a part, must be considered only as derived portions of incomparably more intense currents circulating in the interior of the nerves and muscles around their ultimate particles.
7. The electro-motive power lasts after death, or in dissected nerves and muscles, after separation from the body of the animal, as long as the excitability of the nervous and muscular fibres; whether these fibres are permitted to die gradually from the cessation of the conditions necessary to the support of life, or whether they are suddenly deprived of their vital properties, by heat, chemical means, &c.
8. We may add that, according to Brown-Séquard, the electro-motive power, at least in muscles, after it has disappeared naturally after death, may be reproduced with the other vital properties, by the influence of injections of oxygenated blood.
9. In the different contractile tissues the electro-motive power is always proportioned to the mechanical power of the tissue.
10. Other animal tissues may produce electro-motive action; but it is neither so strong as the action of the nerves and muscles, nor so regular; nor does it vanish with the vital properties of the tissues; nor does it, lastly, undergo those sudden variations of intensity and direction, which may be thus briefly stated:
11. The galvanic current in muscles when in the act of contrac-

tion, and in nerves when conveying motion or sensation, undergoes a sudden and great diminution of its intensity. (We have said above that there is some reason to doubt the accuracy of this law as regards muscles.)

12. Muscles inactive from the contrary action of the *parelectronic layer*, when contracting, become active in the opposite direction to that which muscles in a state of rest exhibit. Hence it must be concluded that the electro-motive force of the *parelectronic layer* remains constant in the act of contraction.
13. If any part of a nerve is submitted to the action of a permanent current, the nerve in its whole extent suddenly undergoes a material change in its internal constitution, which disappears on breaking the circuit, as suddenly as it came on.
14. The electric phenomena of motor and sensitive nerves are identical. Both classes of nerves transmit irritation in both directions. We will merely say in addition to these laws, that, in examining who was right between Galvani and Volta, we find that they both were, in some points, right, and in some others wrong. Galvani was right in saying that there is an animal electricity, and Volta was right in looking at the heterogeneity of metals as a source of electricity; and had he extended his views to the living tissues, he would have found that there also, as in metals, where there are two heterogenic particles in contact one with the other, a galvanic current is generated.

II. *The production of static electricity in animals.*

A constant production of this kind of electricity cannot be doubted; but, animals and men being in free communication with the earth, it is rarely possible to ascertain the presence of this electricity. But when the body of a man is insulated, he may affect the electrometer. If two men are insulated, as it often occurs that they are both charged by different electricities, there is, when they touch each other, a peculiar crackling, and sometimes a spark, announcing the combination of the vitreous and the resinous electricity. In dry weather many persons may hear the sound and see the light resulting from such a combination, when they suddenly pull off the articles of dress in contact with their skin. Dr. Schneider mentions a Capuchin friar, who, on removing his cowl, used to perceive a number of shining, crackling sparks passing from his scalp. But it is in this country that the most interesting fact, concerning the production of static electricity, has been observed. It was in a lady who, for many months, was in an electrical state so different from that of surrounding bodies, that, whenever she was but slightly insulated by a carpet or other non-conducting medium, sparks would pass between her person and any object she approached; when she was most favorably circumstanced, four sparks per minute would pass from her finger to the brass ball of the stove at the distance of $1\frac{1}{2}$ inch. From the pain which accompanied the passage of the sparks, her condition was a

source of much discomfort to her. The circumstances which appeared most favorable to the production of electricity, were an atmosphere of 80° Fahr., tranquillity of mind, and social enjoyment; whilst a low temperature and depressing emotions diminished it in a corresponding degree. The phenomenon was first noticed during the occurrence of an aurora borealis; and though its first appearance was sudden, its departure was gradual. Articles of dress had no influence upon its intensity.

ANIMAL HEAT. All the higher classes of animals have the power of maintaining a temperature uniform, within certain limits, whatever may be that of the external medium to which they are exposed. No animal has this power in so high a degree as man. He is enabled to live in the torrid zone, in localities in which during a large part of the year the thermometer reaches 110°, and where it is sometimes found as high as 180°, and to support existence within the arctic circle at a temperature of 70° or 102° below the freezing point of water. Though existing in the highest degree among birds and mammals, the heat-producing power is found even in the lowest scale of animal existence; when water containing infusoria is frozen, each minute animalcule continues to live for a time in a drop which surrounds it, and which seems kept from freezing by the heat evolved from its body. In all classes of organic beings, the animal heat bears a certain ratio to the activity of respiration: cold-blooded animals breathe slowly and infrequently; in hibernating animals, during their winter sleep, the respiratory movements become exceedingly feeble, when roused by external stimulus, the respiration becomes active and their heat returns; birds, in whom the respiratory organs are more highly developed than in any other class of animals, have a temperature exceeding that of any other class. The expired air is not the same as that taken into the lungs; it is not only loaded with watery vapor, but a certain portion of its oxygen has disappeared and is replaced by carbonic acid, the ordinary product of the combustion of pure carbon in oxygen gas. Man takes daily into his system in the shape of food a large proportion of carbon; a very small part of this is found in the feces and urine, but the greater part has disappeared, and yet the individual does not increase in weight; the carbon has been exhaled from the lungs in the form of carbonic acid. By carefully weighing all the articles consumed by a regiment of soldiers, 856 strong, for a month, and submitting them to elementary analysis, after allowing for the quantity contained in the excretions, Liebig (*Familiar Letters on Chemistry*, p. 313, Lond. 1851) calculates the average amount of carbon daily exhaled from the lungs and skin to be 18.9 oz. for each individual. As the result of a number of observations made by collecting the carbonic acid expired from the lungs, Carpenter estimates the quantity of carbon ex-

haled daily by a healthy adult from the lungs at 8 oz. The carbonic acid expired from the lungs is not formed in those organs; it is brought to them by the venous blood from the right cavity of the heart; in the lungs the carbonic acid is given off and oxygen absorbed, and the blood thus vivified is distributed by the left side of the heart, and the arteries throughout the body, to be again converted in the course of the circulation into venous blood. Nor is the union between the carbon and oxygen at once completed, and carbonic acid thus directly formed from its constituents as in ordinary combustion; in all probability a number of intermediate compounds are formed which chemists have not yet succeeded, and which they may never succeed, in isolating, and carbonic acid is the last of a series, each richer in oxygen than the one that preceded it. In whatever way, however, the combination may be effected, the result is the same; as much heat is produced as would be given out by the direct combustion of pure carbon in oxygen gas; the heat is simply diffused over a wider space and a longer time. Beside the carbonic acid the expired air is saturated with watery vapor, the ordinary daily amount of water thus exhaled varying from 16 to 20 oz. Of this the greater part is derived indirectly from the fluid taken as drink, but a portion is undoubtedly due to the union within the tissues of oxygen with the uncombined hydrogen contained in certain varieties of food, and the heat thus produced goes to reinforce that given out by the transformation of carbon into carbonic acid. Independent of these two main sources of heat thus pointed out, minute quantities of the phosphorus and sulphur which are constituents of the tissues are constantly being oxidized, and eliminated as phosphoric and sulphuric acids in combination with some base; indeed, every change by which either the tissues themselves or the substances which find their way into the blood become further oxygenized is attended with the evolution of caloric. In temperate climates a greater amount of caloric is required in winter than in summer; there is an increased appetite for heat-producing food, and a larger amount of carbonic acid is exhaled. Thus, in the careful experiments made by M. Barral upon himself, while in summer the exhalation amounted to but 7.8 oz. of carbon a day, in winter it rose to 10.8 oz. In the torrid zone the appetite is languid, and the diet consists largely of watery and unsubstantial fruits, while the Esquimaux revel on raw blubber and the fat liver of the walrus. The dyspeptic, the man of feeble appetite and difficult digestion, is pinched and frozen in winter, while the strong and robust, with abundant food, enjoy increased strength and activity. In cases of starvation the reduction of the animal heat seems to be the immediate cause of death. In Chossat's experiments (see *ABSTINENCE*), birds lived until every particle of fat that could be taken up was consumed. Up to that period

the maximum heat did not fall, but the diurnal variation in those animals amounting ordinarily to $1\frac{1}{2}^{\circ}$ was increased to 6° . On the last day of life the temperature began to fall, and this fall continued steadily hour by hour until death supervened, the total fall on the last day amounting to 25° . If after the fall had commenced, external heat was applied, the animals revived, recovered the use of their senses, moved about, and took food when presented to them, and if the external warmth was continued until digestion was completed, they recovered. Fat is of much more consequence in enabling an animal to resist starvation than volume of muscle. In a celebrated instance recorded by Mr. Martell, (*Trans. of Linnæan Soc.* vol. xi. p. 44), a pig weighing 160 pounds was buried in its sty for 160 days, under 80 feet of the chalk of Dover cliff. When taken out, it was still alive, but its weight was reduced to 40 lbs.—The normal temperature of the human body, in a state of health, is about 100° F. It varies, however, according to the observations of Dr. J. Davy, $5\frac{1}{4}^{\circ}$, the lowest temperature observed having been 96.5° , the highest 102° . It would appear from the experiments of MM. Becquerel, and Breschet (*Archives de Museum*, tom. xi. p. 402), that muscular contraction is attended with the disengagement of heat. When the biceps was thrown into vigorous contraction, as in strongly flexing the arm, the temperature was raised 1° , and repeated movements of any one muscle produced an elevation of 2° . General exercise seems to raise not only the temperature of the muscles, but that of the internal parts; thus, according to the observations of Dr. J. Davy (*Philosoph. Trans.* for 1814), the temperature of the urine being 100° while in a state of repose, that passed immediately after taking exercise was 101.5° . The temperature of infants, under favorable circumstances, is somewhat higher than that of adults. They, however, have less power of generating heat, and consequently of resisting cold. The younger the infant, the greater the deficiency in the heat-producing power, and this is greatest in children prematurely born. Dr. Edwards found the temperature of a 7 months' child, 2 or 3 hours after its birth, but 89.6° F. though in the mean time it had been well swathed, and placed near a good fire. The same thing obtains with regard to the young of the inferior animals. There is, however, a remarkable difference in this respect, according to their degree of development at birth. Thus, the young guinea-pig, which runs about and picks up its food as soon as born, is independent of the warmth derived from the mother, while the young of animals born blind, cats, dogs, rabbits, &c., when removed from contact with the body of the mother, rapidly lose their heat. The physical cause—the activity of respiration, and the consequent amount of carbon consumed—is wisely co-ordinated with the various habits of the animal.—The temperature of the aged is the same with that of adults, but

like infants, their power of resisting cold is materially lessened. When the thermometer falls much below the freezing point, there is always an increase in the mortality, due to the greater number of deaths among the feeble and the aged.—While in health, and under ordinary exposure, the temperature of the body varies but little from 100° F., a much greater variation occurs in disease. In maladies attended with a frequent pulse, and an accelerated respiration, the animal heat is found to be increased from 2° to 8° above its normal standard, and in a case of tetanus, it has been noticed as high as 110.75° F.; on the other hand, when the breathing is slow, and the pulse infrequent, the temperature of the body is often very much lowered. It has been noticed as low as 78° in asthma, and in cholera has fallen to 67° . It is remarkable that in some diseases the temperature occasionally rises considerably after death; this has been noticed chiefly in cholera, and in yellow fever. In some cases of the latter disease, in which the temperature had not exceeded 104° during life, Dr. Bennett Dowler, of New Orleans, has found the thermometer, introduced into an incision in the thigh after death, rise to 118° . In these cases, molecular life still exists after the patient expires; the voluntary muscles often contract of themselves, causing the limbs or body to change their position, and contraction of the muscles can readily be excited by striking them a sharp blow.—In hot countries, the body is often exposed to a temperature more elevated than its own, and the workmen, in many occupations, those employed in glass-houses, iron-foundries, gas-works, &c., are occasionally exposed to a degree of heat much greater than that ever produced by the sun upon the surface of the earth. The workmen of Sir T. Chantrey were in the habit of entering the ovens in which his moulds were dried, while the floor was red hot, and the thermometer in the air stood at 380° F., and Chabert, the fire-king, would expose himself for a short time to a heat of 500° or 600° F. In some experiments made by MM. Berger and Delaroche, the thermometer placed under the tongue of a man who had been for some time exposed to a heated atmosphere, showed an elevation of 7° , and the same gentlemen, experimenting on animals by confining them in an atmosphere heated from 122° to 201° , until they died, found that in no instance, previous to death, was the temperature raised more than 18° . Under exposure to heat, evaporation from the surface is the means which nature employs to maintain the equilibrium. Much more fluid is commonly poured out than is used to lower the temperature by evaporation, the amount depending partly on idiosyncrasy, partly on the amount of fluid previously ingested. Thus, Dr. Southwood Smith (*Philosophy of Health*) weighed, in their clothes, a number of men employed in the Phenix gas-works, in London, previous to and after their being exposed to an intense heat in drawing and charging the retorts and making

up the fires. The exposure lasted 45 minutes; the average loss of weight was 3 lbs. 6 oz., the maximum loss 4 lbs. 8 oz., the minimum 2 lbs. 8 oz. As is the case with cold, so a continuance of hot weather always largely increases the bills of mortality; it at the same time exhausts the energies of the system, and augments the irritability of the intestinal canal, while in our large cities, it rouses into action numerous causes of disease which might be obviated by better hygienic regulations.

ANIMAL MAGNETISM, called also **MESMERISM**, a force or fluid by means of which a peculiar influence may be exerted on the animal system. About the middle of the 18th century, several persons in different parts of Europe conceived the idea that men are sensible to the influence of magnetism. Among others who had such thoughts was Maximilian Hell, professor of astronomy at Vienna, in the year 1772; and he advised a physician of his acquaintance, Dr. Frederic Anthony Mesmer, to try whether he could not cure diseases with the magnet. Mesmer was pleased with the idea, made a number of experiments, found that he could exercise a singular influence on his patients, and soon he laid claim to the discovery of a great curative agent in magnetism. Popular attention was drawn to him and his new mode of treating disease; many patients placed themselves under his charge, and a large proportion of them being cured, they aided greatly to increase his fame. Hell soon claimed to be the real discoverer, and a serious dispute arose between him and Mesmer. The latter declared that he did not cure his patients by mineral magnetism but by animal magnetism, a peculiar agent developed in his own body, and conducted to the patients either with or without magnets. This dispute was followed by others. Vienna soon became a disagreeable place, and early in 1778 Mesmer made his appearance in Paris, from which, as the great centre of science and literature, he proposed to send forth his doctrines to all the world. He soon caused an excitement in the French metropolis, and became a world-famous man. Public opinion was decidedly in his favor for a time, more particularly among the higher classes; and several works which he published in 1779 and 1781 were very favorably received. He ventured to address a note to the French government, stating that he had discovered an agent by which most of the diseases of the human frame could be cured, and requesting the grant of a certain chateau and adjoining lands, as a reward for his discovery, and as a place for the establishment of a great healing institute. The government replied, refusing his request, but offering him a yearly pension of 20,000 livres, and a certain sum for the establishment of a hospital, on condition that he should teach his doctrines to some persons, of whom 3 should be selected by the government. He rejected the offer; and complained of having been ill treated by the authorities of a nation, upon which he proposed to confer in-

estimable blessings. His friends, desirous of giving him some pecuniary reward for his discoveries, proposed that classes should be formed of pupils, whom he should instruct in animal magnetism. Each pupil should pay 100 livres as tuition fee, and bind himself not to teach others. These classes were formed, and they paid him in all 840,000 livres—an immense fortune for such a man. Among his pupils were many men of rank, some of whom were then or afterward became eminent. Lafayette, D'Espremenil, the Marquis de Puységur, and Dr. D'Eslon, were members of his classes. D'Eslon was a man of much influence, and held the post of physician to the king's brother. He took great interest in animal magnetism, used it in his practice, and made a large fortune by its means. In 1784, the French government ordered the medical faculty of Paris to investigate Mesmer's theory, and make a report upon it. Under this order a commission was appointed of a dozen persons, among whom were Franklin, Lavoisier, Bailly, and Jussieu. Mesmer refused to appear before them, but D'Eslon took his place, made himself the advocate of the new doctrine, and tried a great number of experiments before them. They investigated the whole subject carefully, and published an able report, drawn up by Bailly and signed by all the members of the commission save Jussieu. The report admitted that a great influence was wrought upon D'Eslon's subjects, but this influence was ascribed chiefly to the imagination. The impression left on the public mind by the report was, that Mesmer was a charlatan. Jussieu thought there was more in animal magnetism than the majority of the commission could discover, but his views were considered to be of little weight comparatively; and the report fixed public opinion. Mesmer's pupils adhered to him faithfully, but the general voice declared him to be a quack; and from that time he ceased to command public respect. Indeed, the report may be said to have extinguished him; after 1784 he exercised little influence, and other men became the leaders of the researches into the nature of the new agent. The animal magnetism, however, of Mesmer, was very different from that of our day. He generally treated his patients by placing magnets on different parts of their bodies, or by having them sit round a covered tub, from the cover of which an iron rod went out to each person, the whole party being connected by touching hands, and by a cord which passed round each person. He also made passes with his hands on or near their bodies. Under this treatment, the patients felt a cold, prickling sensation pervading the limbs or body, then nervous twitchings, drowsiness, sleep, and sometimes cramp, and convulsions, and alleviation of pain in those who were suffering with nervous diseases. Mesmer had not discovered what is now considered the most important result of animal magnetism—somnambulism, which was discovered, or at least brought before the public, by the Marquis de

Puysegur about the year 1785. This was really the great discovery in animal magnetism, and without it, all Mesmer's discoveries must have forever remained incapable of clear proof, subject to the reasonable suspicion of quackery, and comparatively valueless to mankind in general. Puysegur was a zealous and unostentatious philanthropist, and he devoted his life to teaching animal magnetism, and to the practice of it for the benefit of the sick. Still, the report of 1784, supported by the influence of the government, which had caused 20,000 copies of it to be distributed, held possession of the public mind, and the mesmerists were little heard of, or were looked upon as charlatans. But magnetic somnambulism with insensibility to pain, and clairvoyance, furnished evidence to investigators, against which no prejudice could sustain itself. Animal magnetism wanted a writer of ability and reputation to defend it in a creditable manner; and that writer appeared in Deleuze, assistant secretary and naturalist of the *Jardin des Plantes*. He was a man much respected as an author, a naturalist, and a man of probity; and his influence in favor of mesmerism was great. In 1818 he published a "Critical History of Animal Magnetism;" and other friendly publications followed rapidly in France and Germany. Several able German physiologists spoke of the new agent as worthy of attention. Well-conducted magazines were established to propagate its principles. The Prussian government took notice of it so far in 1817, as to order that none save physicians should practise it; and in the following year, the academy of sciences of Berlin offered a prize for the best treatise on the subject; but this offer was subsequently withdrawn. Ennemoser, Kluge, Kieser, Wolfarth, and Nees von Esenbeck, defended mesmerism in books and magazines before the German public, and Deleuze kept the subject before France, by publishing a number of works. In 1825, Dr. Foissac, a young physician and an enthusiastic believer in animal magnetism, demanded of the royal academy of medicine in Paris, that another commission should be appointed, and another investigation made. The subject was too important, and its friends were too strong, to permit even its enemies to pass it by with a sneer; and hostile as the majority of the academy were to its pretensions, they yet saw fit to grant Foissac's petition. The new commission was composed of 9 men of learning and perspicacity, several of whom had European reputations, and all of whom were admitted to be men capable, if they could be impartial, of doing justice to their appointed task. Their report was anxiously awaited. Magnetism had made an invasion upon the territories of medical tradition, and general experience and philosophic probability; it had appealed from the hostility of the great to the judgment of the multitude. It was in vain that its friends were treated as charlatans by the medical faculty and the majority of the learned; the man who had wit-

nessed mesmeric experiments, among his friends, would believe in despite of all the authority which could be brought to bear upon him. The new investigation was to decide which side was right; but their opinion was withheld for 5 years after the appointment of the commission. At last, in 1831, the report was rendered. The committee had decided unanimously in favor of the pretensions of animal magnetism. They reported that it is a force capable of exercising a powerful influence on the human system; that this influence does not depend upon the imagination; that it does not act with equal force on all persons, and is almost if not quite powerless, so far as they could observe, upon some; that it may produce somnambulant sleep; but that in this sleep, injury to the nerves of sensation does not cause a sense of pain; that the sleeper ordinarily can hear no sound save the voice of the magnetizer; that the sleeper's nerves of touch and smell carry no sensation to the brain, unless excited by the magnetizer; that some sleepers can see with their eyes closed, can foretell accurately, even months in advance, the time of the access of epileptic fits, or the time of their cure, and can discover the diseases of persons with whom they are placed in magnetic connection; and that persons suffering with weakness, pains, epileptic fits, and paralysis, were partially or entirely cured by magnetic treatment. The report created a great sensation; it gave a powerful impulse to the investigation of mesmerism, and extended it into Britain and America, where it had been almost unknown before. In 1838, J. C. Colquhoun published, in English, a translation of the report with remarks; in 1838, he published an original work on the same subject, entitled *Isis Revelata*; in 1840, the Rev. Chauncey Hare Townshend published his "Facts of Mesmerism;" and H. G. Atkinson, Dr. Elliotson, Wm. Lang, and Professor Gregory of Edinburgh, followed. At this time Baron Dupotet was active in France; and a number of persons were lecturing and experimenting throughout the United States. About the year 1840, Baron Karl von Reichenbach, a German eminent for discoveries in chemistry, and for labors to further the industrial interests of his native country, became interested in animal magnetism, and the result was the publication of several large and carefully written works, in which he claims to have found a force, fluid, or principle which he calls *Od*, or as we should spell it in English (to preserve the pronunciation and distinguish from another word of the same sound), "Oad." This agent, according to Reichenbach, is not confined to the animal kingdom, but pervades the universe, may be perceived in various ways by sensitive persons, has a great influence upon life and health, and like electricity and galvanism, has two opposite poles, and may be accumulated in, or conducted away from, animal bodies. These assertions, however, are not yet admitted to be well founded by mesmeric authorities. About the

same time that the Austrian baron was conducting his researches into the Oad, a Mr. Braid of Manchester, England, discovered that he could produce sleep in most persons whom he tried, by ordering them to look steadily at some small object about a foot from the eyes, and above their level. He gave the name of "hypnotism" to the sleep and somnambulism thus produced, and styled his theory for the explanation of the phenomena, "neurypnology." The principles discovered by him were applied by other persons in various ways, and variously styled "biology," "electro-biology," &c. All the phenomena produced under these different names are substantially mesmeric. Mr. Braid has no faith in clairvoyance proper; but he admits an "exaltation of the senses" in the mesmeric and hypnotic states, giving a delicacy of perception, and sometimes a perspicacity of reasoning exceeding that of the normal state. These views of Mr. Braid are sanctioned by Dr. Wm. B. Carpenter in his "Human Physiology," which is a standard work of reference upon physiology in England and America. However, the medical profession generally may be considered as hostile to mesmerism; and all the cyclopædias heretofore published in the English language treat its phenomena as the effect of over-excited imaginations, or its operators as impostors. It has even been denounced from the pulpit, as an impious attempt to rival the miracles and prophecies of revelation, or to introduce demoniac influence into the management of human affairs.—Let us now turn to the alleged phenomena. It is supposed that every animal may influence others, or be influenced by the mesmeric agent. But, as a general rule, persons of strong constitutions, in the vigor of life and health, are capable of exercising the most powerful magnetic influence upon others; while persons of delicate constitutions and weak nerves are the most susceptible. There are many methods of conveying the influence; but the most effective way of throwing persons in the magnetic sleep, is, for the magnetizer to place himself in immediate contact with them, or to make passes with his hands very near them. Ordinarily the magnetizer and the patient are seated opposite to each other; the former, with each hand, lays hold of the opposite hand of the latter, with the balls of the thumbs resting against each other. Thus they sit for 5 or 10 minutes, or until the influence begins to be felt. The magnetizer then withdraws his hands, and makes slow passes with open hands and outspread fingers over the patient from the head to the foot, turning the hands away while moving them upward, and while making the downward passes keeping the points of the fingers within an inch or two of the patient's clothing. After making a dozen or two of such passes, the magnetizer resumes his former position. During the whole of this process he keeps his attention on the patient, and exercises his will in silent commands that he shall become somnambule. The

patient should be still, quiet, and resigned. Some persons can be mesmerized within a few minutes; others cannot be affected by trials of an hour daily for weeks; but after the experiment has once succeeded it can be more easily repeated. The patient becomes more susceptible, and the magnetizer more powerful, by every successful trial. The patient who could not, at first, be thrown into the mesmeric sleep in less than an hour of constant contact with the operator, may at last be magnetized in a few minutes or seconds, without contact, by the mere outstretched hand, glance, or even will of the mesmerist. The various stages of the magnetic influence may be classed as 6. The first stage is that of waking magnetization. The patient feels a singular influence pervading his body, frequently a prickling, somewhat like that felt in a limb asleep. Sometimes there is an increase of temperature and sweat. The second stage is that of drowsiness. The pulse becomes fuller, the breathing slower; there is a feeling as though warmth were radiating from the stomach; there is a heavy pressure on the eyelids, which close against the will of the patient, and he is unable to open them; but still he retains his normal consciousness and sensation. The third stage is that of coma or senseless sleep, wherein he is insensible to the loudest noises, and all the nerves of sensation are as if benumbed. The fourth stage is that of magnetic somnambulism. The patient awakes from the third stage into a new sphere of existence, and as another person. He has consciousness and sensation, but they differ greatly from those of his normal condition. He hears only the voice of his magnetizer, or of some person in contact with him. The magnetizer can make his muscles rigid in almost any position, and has the power of governing his physical motions. His own senses of touch, taste, and smell, appear to be dormant, but he perceives all the impressions produced on those senses in the magnetizer's frame. The fifth stage is that of clairvoyance. This is a heightened condition of the fourth stage. The patient has means of perception unknown to man in his normal state, and so singular that the assertion of their possession measured by the general experience of the race, appears to be an impudent falsehood or imposture. The somnambulist can see with his eyes closed and bandaged; he can then even see what waking men in his place cannot see with their open eyes. He can read the contents of letters unopened; he can see through clothing, wood, and metal boxes, and walls of brick or stone; he can tell what is going on in the room above him or in the room below. Sometimes the sense of sight, or a faculty capable of perceiving things which the normal man perceives only by means of the organ of vision—in the forehead, in the backhead, in the fingers, or in the knuckles of the hand. Thus the clairvoyant will sometimes move about holding his fist in front of him for the purpose of seeing where he is going. How this means of perception can

exist away from the organs of vision; why it exists in one part of the body more than another; and why one should have it in the hand, another in the forehead, and a third in the backhead, are questions very proper to be asked; but to which there is no satisfactory answer, except for the denier, who cuts the gordian-knot by a declaration that no man ever did see save through his open eyes. The clairvoyant not only sees things outside of his body, but even in it. His whole physical frame is transparent to him; he looks through and sees all the functions of life as though they were going on in a glass case. He can see through the bodies of others placed in magnetic connection with him, in the same way. Frequently he will describe with the accuracy of high anatomical, physiological, and pathological knowledge, the operations of healthy and diseased organs; and will even prescribe remedies for disease. The clairvoyant can hear also, without using his ears, and with more acuteness than can others in the waking state, using their ears. Sometimes the sense of hearing appears to have its seat at the pit of the stomach; and the clairvoyant hears no sounds except those made at his breast. The senses of taste, touch, and smell, are ordinarily inactive. A teaspoonful of the strongest mustard or cayenne pepper placed in the clairvoyant's mouth, does not affect him. He holds it there or swallows it down without expressing any unpleasant feeling in his face. He inhales the strongest ammonia through his nose with equal stolidity. He is insensible of pain; he may be pinched; pins may be thrust through his hand or into his legs or arms; even his limbs may be cut off; and he shows no symptom of pain. He even talks and laughs while he knows that an arm or leg is coming off. But while so insensible to sensations upon his own nerves of touch, taste, and smell, he feels all the impressions upon those of his magnetizer. If the latter be pinched, the clairvoyant winces, as though he felt the pain at the corresponding part of his own body; if the magnetizer takes pepper, salt, vinegar, or sugar into his mouth, the patient feels the taste too. He is governed by the will of the magnetizer; whatever the latter orders him to do, he does; and this order is understood and obeyed, even if not spoken, but merely thought. If the mesmerizer tells him that he cannot move, he cannot; if the mesmerizer give him water to drink, telling him that it is whiskey, the patient gets drunk, and reels and falls like a drunken man. If the mesmerizer says a stick is a snake, the patient believes it and acts accordingly. He has a particular affection for the mesmerizer, and likes to be near, and in contact with him; he also has a particular affection for all other magnetized persons under the influence of his mesmerism; perceives their presence more readily than that of other persons; and is apt to call them brothers or sisters. He speaks of himself in the mesmerized state as a different person from

himself in the normal state; or rather speaks of his normal self as a third person. Somnambulists assert that they see the souls of deceased persons and converse with them, and obtain their extraordinary knowledge from them. All the mental faculties seem to be unusually acute. Clairvoyants speak with a clearness, intelligence, and learning, which they never possess in their waking state; and even speak properly of matters of which they know nothing before being mesmerized. They lose false modesty, and disregard many of the usual conventionalisms of society. They are more familiar and cordial in their manners than in their normal condition. The natives of those countries such as France, Germany, Spain, Italy, &c., where "*Tu*" (*tu* or *du*) is the manner of address between intimate friends or near relatives, when in the clairvoyant state, always say "*thou*" to those with whom they converse. A bashful girl, if mesmerized, will deliver a lecture before a large audience with all the self-possession of the most practised orator. But the clairvoyant has frequently a sense of propriety, which is always observed. He may remain in that state for weeks, or even months, and perform all the ordinary functions of life with regularity and order—eating, drinking, and working during the day; working with the eyes shut, and sleeping during the night. What kind of sleep this is, and how it differs from the sleep of the normal state, is not described in the books. The clairvoyant has two states of consciousness, or a "double consciousness," as it is called, and a double memory. When clairvoyant he remembers every thing he ever did in that condition, and remembers also the events of his waking life; but when he returns to the latter state he remembers nothing of his abnormal life, unless it be something which the mesmerizer has specially ordered him to recollect. The sixth stage is that of perfect clairvoyance. This is a more exalted condition of the fifth stage. The perfect clairvoyant sees what is going on at a distance of hundreds of miles, reads the thoughts of all persons about him, reads the past, and can truly foretell the future. His soul dwells in light and delight; he often regrets that he cannot live in that state forever; he shudders at the necessity of being brought down again into the dull, tiresome, base world of normal life. Between these different stages of the mesmeric condition as here described, no precise line can be drawn. The transition from one stage to the other is gradual, and generally imperceptible at the time. Thus many of the characteristics of the clairvoyant stage belong also to the somnambulist stage, in which they are indeed most frequently observed.—These are the alleged phenomena, and to decide what are the real phenomena, and to justify our decision by criticism of the various witnesses, would be inconsistent with our duty as cyclopaedists. That many of these alleged phenomena are real is the general belief of the public; and that belief, though without the countenance of the majority of physiologists, physicians, and

learned men, is yet approved by many persons of high authority; among whom, Laplace, Ouvrier, Agassiz, Hufeland, Sir Wm. Hamilton, Dr. Herbert Mayo, Dr. Wm. B. Carpenter, and Prof. Edward Hitchcock, may be mentioned. Carpenter, as the author whose works on physiology are a standard of reference in Britain and America, and all whose writings are marked by a careful abstinence from injudicious and hastily formed opinions and theories, may perhaps be the safest guide for those who have not an opportunity to examine the question thoroughly for themselves. He recognizes the magnetic states of coma, and somnambulism. In coma, or "perfect insensibility," he says that severe surgical operations may be performed without pain to the patient. In somnambulism he admits the existence of double consciousness, the possibility of complete command by the magnetizer over the somnambulist, "the exaltation of one or more of the senses" so as to perceive things which no waking person in the same place could perceive, and the power of the magnetizer to make the muscles of the somnambulist rigid, so that he performs feats which he would be unable to perform in the normal condition. He does not state precisely the degree of the "exaltation of the senses" to which he is disposed to lend credit; and upon that degree the whole question of clairvoyance rests. Any "exaltation of the senses"—that is, a perception more acute than in the waking state—must be a kind of clairvoyance, as understood by writers on animal magnetism; for the word is not confined to the faculty of sight alone. Dr. Carpenter says he "has repeatedly seen Mr. Braid's hypnotized subjects write with the most perfect regularity, when an opaque screen was interposed between their eyes and the paper, the lines being equidistant and parallel; and it is not uncommon for the writer to carry back his pen or pencil to dot an *i* or cross a *t*, or make some other correction in a letter or word. Mr. B. had one patient who would thus go back and correct with accuracy the writing on a whole page of note paper; but if the paper was moved from the position it previously occupied on the table, all the corrections were on the wrong points of the paper, as regarded the actual place of the writing, but on the right points as regarded its previous place; sometimes, however, he would take a fresh departure, by feeling for the upper left hand corner of the paper, and all his corrections were then made in their right positions, notwithstanding the displacement of the paper." In this case there was an acuteness in the idea of distance such as the patient had not in the normal condition. Dr. Carpenter mentions no other example of "exaltation of the senses," but he repeatedly mentions Mr. Braid as a safe guide; and we find the latter stating ("Trance," London, 1850), that an ignorant girl, unacquainted with music and with the grammar of her own language, hypnotized, sang songs in foreign languages with Jenny Lind, with a pronunciation and intonation so exact,

that persons not very near, supposed there was only one voice, and that the Swedish Nightingale's. This was a task which no human being could do in the waking state. What wretched work an ignorant English girl would have made, when in the normal condition, in trying to sing Italian and German songs with Jenny Lind, may be conceived. After mentioning coma, somnambulism, and exaltation of the senses, Dr. Carpenter says that these are "the principal phenomena of the mesmeric state in regard to which he feels his mind made up;" and elsewhere he adds that, in regard to the alleged phenomena of clairvoyants, "reading with the eyes completely covered, or of discerning words enclosed in opaque boxes, or of giving an account of what is taking place at a distance," he is convinced that no case of this description "has ever stood the test of a searching investigation." He who is unwilling to be guided by the opinion of Carpenter, can read most wonderful tales in the following works, written by men of literary ability, who had devoted much attention to animal magnetism, most of them having practised it for years:—Deleuze's "Practical Instruction in Mesmerism;" "Letters on Animal Magnetism," by Prof. Wm. Gregory; "Mesmerism, its History, Phenomena, and Practice," by Wm. Lang; "Facts in Mesmerism," by the Rev. Chauncey Hare Townshend; "Truth in Popular Superstitions," by Dr. Herbert Mayo; and "Practical Instruction in Animal Magnetism," by Dr. Alphonse Testa. No noteworthy book has been written against mesmerism, and devoted entirely to the one subject. Such views as Carpenter adopts are ably set forth in his "Human Physiology," pp. 845 and 958; in an article in the "British and Foreign Medical Review," vol. xix.; and the works of James Braid on "Hypnotism," and "Trance."—The reasons why the truths of animal magnetism, as recognized by Carpenter and other careful physiologists, have not been received with more favor, may deserve to be briefly stated. 1. Nearly all the mesmeric phenomena are of a character contrary to the general experience of the race, and to the ordinary experience of every individual; and experience has become with most of the learned the measure of possibility. 2. If the mesmeric phenomena be received as true, they cannot be explained upon any consistent or plausible theory, or connected regularly with the healthy functions of the body. Among all the able works written in favor of mesmerism, not one can be found with an explanation, even half-way satisfactory, of the phenomena, supposing them to be fact. 3. The mesmerists claim to be able to cure with passes, many diseases which are now incurable or cured with great difficulty by the treatment of the regular physicians. And the mesmerists claim that any person of ordinary intelligence may exercise the mesmeric influence, no medical education being necessary thereto. Thus they become the rivals of the

regular physicians, and the latter, as a class, declare animal magnetism to be a humbug, and will have nothing to do with it, and exert all their powerful influence against it. 4. Religious principles have been excited against mesmerism, because its advocates have claimed the power of working cures and predicting the future in a manner which is supposed to be derogatory to the divine power evinced in the miracles and prophecies of revelation. 5. Cases are familiar, by rumor at least, to nearly every one, where injury has been done by experiments with mesmerism. Thus, young women, when in the somnambulist state, have had their confidence abused; and others, by being frequently magnetized, have come to be enslaved to the will of the magnetizer. Of this latter condition, the following example may suffice: A gentleman, who had frequently mesmerized a young lady living in his house, finding her to be very susceptible, even when in the waking state, to his influence, determined to try an experiment with her, while in that condition. She was at the time expecting the arrival of her mother, whom she had not seen for a long time, and to whom she was exceedingly attached. The gentleman ordered an old, poorly-clad washerwoman to go and knock at the door; and when she knocked, he called out to the young lady: "Mary, your mother's at the door." Mary ran down, opened the door, threw her arms around the old woman's neck, kissed her, and asked how the relatives were, and acted precisely as if her mother were before her. The gentleman cried out from an upper window: "Why, Mary, what are you doing! that's the washerwoman." The poor girl sank to the floor in shame and tears; she saw the absurdity of her conduct, the moment the magnetizer spoke. Another evil influence which has resulted from mesmeric experiments, is that the persons magnetized have been thrown into severe cramps and spasms, which have endured for a long time, and have seriously weakened the subjects of them. One or two cases have occurred of death under magnetic treatment, wherein it was supposed that the torpor affecting the cerebrum and sensory ganglia in the state of coma, had extended to the medulla oblongata, the activity of which is necessary to the preservation of life.—In closing our article, we may remark that the student of the natural sciences will encounter no subject more puzzling than this of animal magnetism, and its various phenomena as reported by men of very considerable literary ability. It is difficult to believe as much as Carpenter sanctions; it is difficult to discover valid reasons for stopping where he stops; it is difficult to go further; it is difficult to discover how scores of able writers, each investigating the subject for himself, and writing nothing save what he has seen with his own eyes, are found to agree in stating that many persons, in the mesmeric state, have performed acts which, according to the general history of the race, are beyond the powers of humanity.

ANIMAL MATTER is distinguished from vegetable and mineral substances by peculiar characteristics of organic structure and physiological endowment. In man, and all the higher animals, the first distinctions of animal matter are those of solid, liquid, and mixed, or pulpy. The skeleton is formed of bones and cartilage, flexible, inelastic ligaments, to bind the articulations, and membranes or periosteum to sheath the bones. Marrow and fatty matter line the central and the interstitial portions of the bony substance, and synovial fluid lubricates the contiguous moving surfaces of the joints. The bones are hard and inflexible, as levers of resistance, but the muscles which move them are both flexible and elastic; not, however, equally so in all their parts, for the proper muscular fibres which are both flexible and elastic, are often attached to inelastic tendons, formed of strong white fibrous tissue, connected with the bone and periosteum at one end, and continuous with the muscle at the other. These tendons are not elastic; they form unyielding though flexible continuations from the elastic portion of the muscle, to gain insertion or connection with the bone, at a distance from the part where the contraction of the muscle acts to move the bone, as an ordinary cord would serve to move a lever. In some parts of the body, these slender cords or tendons are exceedingly long in proportion to the length and bulk of the muscles to which they are attached. The longest occurs in the posterior portion of the leg, running like a slender tape from a small muscle in the upper part of the calf, down to the heel. This is called the plantaris; its origin is just above the external condyle of the femur, and its long tendon is inserted into the os calcis, before the tendon achillia. Many of the muscles which move the fingers and the toes, being situated high in the forearm and the leg, have long and slim but very strong tendons, connecting them with the distant digital phalanges. Besides these tendons, the muscles are sheathed by fibrous membranes, allowing free motion to each one without unnecessary friction on the neighboring parts. The intervals, moreover, between the muscles, bones, nerves, and vessels, are filled with a very fine loose network of flexible and elastic fibres, commonly called connective tissue, or areolar tissue, and the areola or interstitial portions of this loose network are either filled with adipose cells and fat, or with a fluid serum which lubricates it, and deadens friction in all the movements of the body. The muscular system, and the skeleton, are therefore each composed respectively of a series of different animal tissues adapted to particular uses, and each of these tissues has physical, mechanical, and physiological properties peculiar to itself and its own functions in the general economy.—The nerves again are different in substance and in structure from the bones and muscles. The medullary or nervous substance is composed of two kinds of animal matter, the gray vesicular, and the

white fibres, both equally soft and pulpy; and these are clothed by several layers of membrane, termed sheaths or neurolemma, as the bones are clothed by periosteum and the muscles sheathed by tough thin membranes called myolemma. The brain is first surrounded by a layer of areolar tissue and capillary vessels for nutrition: this is termed the "pia-mater," or soft sheathing. The next layer is a double serous membrane or covering, which contains a lubricating fluid to deaden friction in the perpetual motion of the brain, rising and falling alternately with every movement of the lungs in respiration. This membrane, called the "arachnoid," from its supposed likeness to a spider's web in structure, is very like the serous membranes which line the walls of the chest and the abdomen and enclose the heart and lungs, the liver, spleen, and stomach, and the whole of the viscera in the abdominal and pelvic regions. A third and denser membrane called the "dura-mater," forms the outward layer of the treble sheath which clothes the brain within the skull, and forms partitions between separate lobes of the cerebrum, cerebellum, and inferior portions of the encephalic mass. Similar membranes clothe and confine the spinal cord, and all the nervous trunks of the body are sheathed in like manner by the neurolemma. The nervous system, therefore, like the osseous and the muscular, is composed of a series of different kinds of animal matter, the white fibres and the gray vesicular substance being soft and pulpy, while the sheaths in which these soft medullary or proper nervous substances are contained, belong to quite a different order of physical, mechanical, and physiological structure and function. The dura-mater and the outward sheath or fibrous neurolemma are similar in structure to the fibrous sheaths or myolemma of the muscles, and the periosteum or fibrous sheaths of bones; while the arachnoid and serous sheaths of nerves are similar in structure and in function to the lubricating or synovial bursa of the bones and tendons. Animal matter, therefore, is everywhere adapted to the functions of the parts involved, and where, in different organs, the functions are in part analogous, the structure of a portion of the tissues is also similar.—The skin and mucous membranes of the body which limit and contain the whole organism, form another category of peculiar structure adapted to particular physical, mechanical, and physiological functions; the glands and follicles which draw forth and combine peculiar secretions from the blood, another; the digestive and the vascular systems have their own peculiarities of structure; and other portions of the body display other forms of animal matter adapted in form and structure to peculiar functions in the organism. The teeth are covered with enamel of excessive density and hardness to resist the wear and tear of mastication; the eyes display a wonderful adaptation of several kinds of solid and liquid animal matter to the catoptric func-

tions of vision; and the structure of the ear, with its rich variety of forms and combinations, density and softness, strength and delicacy, intimate connection and special isolation of parts, is not less marvellous in the adaptation of diverse kinds of animal matter to a special use.—The blood is the most important fluid of the body, and contains within itself, alone, a rich variety of animal matter, mixed with water, air, and gases, of a less organic or a purely inorganic nature. The corpuscles, both red and white, are formed of minute cells, the walls of which are delicate animal membrane, and the contents a mixture of organic and inorganic substances. The serum of the blood in which these corpuscles float, is also a combination of organic and inorganic elements, from which the different tissues mainly draw their regular supplies of nutriment.—The glands and follicles of the body manufacture and secrete a great variety of fluids or excretions to subserve the wants of the economy. Saliva, gastric juice, and bile; milk, semen, and the uterine secretions; tears, mucus, ceramen, and sebaceous oil; not to mention various other excretions, all containing more or less animal matter of different kinds. By chemical analysis these animal tissues, membranes, and fluids, may be decomposed into the more simple forms of albumen, fibrine, caseine, and other organic compounds; and numerous varieties of inorganic matter may be separated from the organic elements. Water is found in all the fluids; air mixed with watery vapor in the various cavities of the body; soda united with various acids in some fluids; ammonia in the urine and the perspiration; sulphur, carbon, lime, and phosphorus; uric, lactic, formic, muriatic, and phosphoric acids, are found variously combined in most of the solid and liquid parts of the body. These again may be further separated into the simpler elements, hydrogen, oxygen, nitrogen gas, &c., showing that, to some extent, the inorganic and organic elements of nature blend together in the higher orders of animal matter; and lead us to suspect that the ultimate atoms in physical nature are alike simple in their constitution, and that, directly or indirectly, mind forms matter into all the vast variety of combinations we behold in what are called the mineral, the vegetable, and the animal realms of the creation.

ANIMAL MECHANICS. Nature displays the most wonderful variety of mechanical adaptation of parts variously formed to suit particular ends and uses, in the structure of animals of every type; and more especially in those belonging to the different classes of vertebrata. The skeleton forms the groundwork of animal mechanics, and the muscles which move it are still more remarkable in their multifarious forms, positions, and peculiar adaptations. And yet the skeleton of every type of animal differs in its forms and relative proportions from all other types of animal structure and mechanical arrangement, and the muscles differ in each

case to suit the same ends and uses for which the skeleton was first designed. The bird is one great type of animal mechanics; the reptile is another; the fish a third and very different type; the mammal is a fourth and higher order of divine perfection in the sphere of animal mechanics; and truly wonderful to contemplate, are all the exquisite variations of proportion, form, and adaptation in the numerous types contained in each of these general classes of organic mechanism; man being the most wonderful of all in the perfection of his structure and the infinite variety of leverage displayed in the mechanical arrangement of the bones and muscles of the human body.—In reviewing the skeleton, we see the most consummate wisdom displayed in every part, to serve a complex purpose. In the first place, we remark the central column designed to serve as a hollow cylinder for the lodgment and protection of the brain and spinal cord, and also as a central basis for the mechanical structure of the whole frame. The cranium is formed as a dome of elegant and light but strongly knit proportions, to protect the most important and the softest viscus of the body, the brain, which being injured by compression or contusion, paralyzes both the body and the mind, to the extent of the parts injured and the faculties and organs thereon depending. Below the cranium the vertebral column forms at once a pillar of support and a hollow tube, continuous with the cranium, to lodge and give protection to the spinal cord, which is continuous with the brain, and forms a constituent part of the great nervous centre of the body. Here flexibility and elasticity of high degrees are marvellously combined with strength and lightness in a complex chain of 24 hollow vertebrae of different sizes and proportions; being more capacious and less voluminous in the cervical region at the upper end of the column, where roominess and lightness are combined, in only less degrees than in the cranium, while the lumbar vertebrae at the bottom of the column are much less roomy, as the tapering spinal cord requires but little space at the extremity, and the bony cylinder is much more solid and voluminous, to bear the weight, mechanically, of the whole cranium and upper portion of the column. The dorsal vertebrae being intermediate in position, are also intermediate in bulk and roominess, being more roomy than solid in the upper, and more bulky than roomy in the lower dorsal region. The vertebral column is sometimes called pyramidal in form, but this is rather an ideal than a real fact, for though it gains in bulkiness, or weight, solidity and strength, as it descends toward the base, it is wider, though less deep, at the top than at the bottom, and in one aspect it might be termed an inverse pyramid. Viewed sideways, the thickness diminishes from the base to the summit, but viewed from before or behind, it is broader at the top than at the bottom. It gains, however, in solidity as it descends toward the base;

and the sacrum on which it rests, though composed of vertebrae as the whole column, is a solid mass of bone, expanded widely to give breadth to the base, and welded together in its parts to give solidity and strength for the support of the whole superstructure. It also forms a constituent portion of the pelvic cavity, the basis of the trunk, and the fulcrum of the lower extremities. Thus solidity is given to the column while lightness and roominess are gradually increased as the cylinder ascends to the cranium, where still more room and lightness are combined with strength to lodge the swelling brain and give it due protection from external shocks and injury. Flexibility is obtained in this hollow cylinder by vertebral segments playing independently on one another, as individual links in one continuous chain, and elasticity, by fibro-cartilaginous rings between each pair of vertebrae. These elastic rings being nearly half as thick as the bony vertebrae to which they are attached, form one-third part of the whole substance, and give to the whole column the capacity of yielding and regaining its position, and thus serve to deaden shocks arriving from above or from below. Beside these cushions between all the segments of the column, the vertebrae are linked together by strong flexible but inelastic ligaments, and the whole complex cylinder is a most wonderful example of solidity, flexibility, and elasticity of structure, combined with mechanical strength, roominess, and economy of material. Nor is this all, for the proper vertebral column is the centre of a double cylinder, or two cavities; the one behind the solid body of the vertebrae contains the spinal cord, crowned by the brain contained within the cranium, while the ribs bend round from the bodies of the dorsal vertebrae to meet the sternum in front of the chest, and form together with the softer tissues the hollow cavity containing both the heart and lungs. Other bony processes analogous to ribs arising from the bodies of the cervical and the lumbar vertebrae, unite with muscles and soft tissues to form the cavities of the neck above the chest, and that of the abdomen below. The mouth, and nose, and other cavities below the cranium, hold a similar relation, and the pelvic cavity is quite analogous in relative position to the rudimental cavity of the sacrum at the base of the vertebral column. The muscles of the spinal column are adapted with consummate wisdom, both in number, form, and distribution, to move it in every possible direction; and volumes might be written to explain the wonderful mechanical perfection of the whole and every minutest part.—The head and trunk may be considered, then, as a twofold continuous series of hollow parts, containing all the viscera of the body; the one behind the massive portion of the central column being unbrokenly continuous to contain the centre of the nervous system, the brain and spinal marrow; the other, before the column, being partitioned off into a series of cavities, within the

face, the neck, the thorax, the abdomen, and the pelvis, to contain the organs of sensation, and the nutritive and reproductive viscera. The peculiar structure of these cavities and their respective complex walls, afford innumerable specimens of perfect animal mechanics. The limbs, though much more simple in their structure, are hardly less wonderful in their mechanical perfection and economy. The lower limbs are destined to support the weight of the whole body, and serve as instruments of locomotion. Strength and mobility are here combined with marvellous economy of means and beauty of adaptation, both in the bones and in the muscles of the feet and legs. And this variety of combination is still more striking when contrasted with analogous distributions of form, size, and proportion in the upper extremities, destined for prehension and manipulation, as the lower for progression and support. The hand contrasted with the foot is marvellous in structure, and the foot contrasted with the hand is not less wonderful. The parts in each are similar, or what is termed homologous, in form and distribution; and the difference of adaptation to peculiar and different uses, is strikingly illustrative of divine wisdom in diversity of animal mechanics. The mode in which the foot articulates with the leg contrasted with the mode of junction between the hand and the forearm, is also curiously illustrative of very simple variation to suit different uses. The elbows and the knees again, are both hinge joints, allowing motion in one plane almost exclusively, and yet the difference of adaptation to diversity of use is perfect. But the difference of adaptation of like parts is still more marked in the shoulder and the hip, the globular head of the femur being deeply and firmly seated in the acetabulum, as a ball and socket articulation, admitting of rotation in all directions, to a limited extent, but first of all, and mainly, of security and strength of connection between the body and the lower limbs; while the glenoid cavity of the shoulder-joint is much less deep and cup-shaped than the acetabulum, allowing first and mainly the utmost latitude to the motion of the arm, and less secure attachment of the humerus to the scapula, where motion is essential to the limb, and dislocation less important as an accident, and less likely to occur in ordinary movements.—The form and structure of the bones in different portions of the skeleton, is not less admirably perfect than the various modes of their connection or articulation. The long bones of the limbs are hollow shafts in the middle portions, very dense in the structure of their walls, combining strength with lightness and contracted volume, and affording room for the large volume of contiguous muscles, while the ends are more voluminous and spongy in their structure, offering a larger surface for the tendons of the muscles to obtain insertion, and combining thus a larger amount of bulk and strength with admirable lightness, not to cumber with their weight the

neighboring parts, or mar the beauty and mechanical perfection of the whole.—There is no end, in fact, to the innumerable aspects of mechanical perfection and economy of means, displayed in the details of the human skeleton, with the corresponding muscular adaptations for moving it in all directions. It is the beautiful ideal of animal mechanics, and the type of infinite perfection, in variety of means adapted to peculiar uses, in both the physical and the mechanical economy of human life. The skull, for instance, contrasted with an ordinary dome of human architecture, shows the infinite distance between the skill of man and that of the Creator. The one is constructed to resist one kind of force only, that of gravitation, acting in one direction, and therefore the strength increases downward to the bottom, where the weight and horizontal pressure of the whole must find support; while in the human skull the structure is designed to give strength of resistance, not in the line of gravitation only, but in every direction; and that, combined with lightness and with some degree of elasticity, especially in childhood. During infancy the cranium, loosely jointed in its sutures, is yielding and elastic, to enable the young child to bear with more or less impunity the blows, and shocks, and falls to which it is exposed in trying its first efforts in the school of progress, literally speaking; i. e. walking, running, climbing, &c. In adult age the membranous soft parts disappear, and the skull is less elastic, but provision is still made for the protection of the pulpy brain within, by double plates of bone with soft material between, to form a strong elastic shell or dome. The adult cranium consists of two layers or tables of bone, with a soft layer of marrow or diploë between them; the outer plate being very tough, with its parts dovetailed strongly into one another, where unyielding strength is necessary, and lapping over one another by means of bevelled edges, where slight degrees of yielding in one direction are preferable to direct resistance; and the chances of inward pressure on the brain to be carefully prevented. The inner plates of bone protected by this outer layer and the soft diploë between, are thin, hard, and brittle, and hence termed vitreous, forming underneath a dense, hard, solid, and inflexible dome, resisting outward pressure, and preserving the soft medullary substance of the brain from all external injury, even when the outward portions of the skull receive hard blows or sudden shocks from accidents or ordinary falls. And here again the modes of jointure are remarkable, the borders being merely placed together side by side, without overlapping or dovetailing as in the outer layer, where these joinings are essential, while they would be useless in the under layer of immovable, hard, vitreous substance. The human skull is not, of course, proof against all possible amounts of violence, but it is wonderfully strong and resisting in proportion to the weight and thickness of the material employed.

It is a masterpiece of animal mechanics, in every portion. A severe partial blow on the skull, like that of a bullet, generally fractures and depresses the part it strikes, while one less violent on a larger surface of the cranium, being slowly resisted by the arched form, often injures the skull as the kind of force which is termed the "horizontal thrust" injures a bridge, by causing a crack at a distance from the part struck, and generally half-way round to the opposite side. In a fall with the head foremost, the skull might often escape with little or no injury, but for the weight of the body which falls upon it, pressing the upper portion of the spine against its base; and as this kind of injury is one of the most fatal, although no outward symptoms of fracture are visible, the surgeon should attend immediately to general symptoms indicating the probability of such an injury. A person falling, should, if possible, also maintain presence of mind enough to let the body fall on any part in preference to the head. In falling directly on the feet, from a great height, the concussion might be just as bad, from the spine acting from below upward on the base of the skull. It is often hardly possible to control the position of the body in a fall; but where it is attainable, the shock should be directed mainly on the side, or any way avoiding the direct concussion from above downward, or below upward.

ANIMAL SPIRITS, or SPIRITS OF LIFE. This is a term used by the older therapeutists to indicate a certain ethereal fluid or aura too subtle to be detected by the senses, which was by them believed to circulate through the internal system of man. The function of distributing this fluid to the periphery of the body, was supposed to be performed by an extremely minute system of nerve channels and tissues, and human maladies were supposed to be consequent upon any irregularity or want of uniformity in the circulation of this fluid. This theory of physiology was somewhat strengthened by the fact, that frequently no blood was found in the arteries of the human body in death; it was therefore believed, until the discovery by Harvey of the circulation of the blood. The term animal spirits is also employed in the physiological writings of Swedenborg, in a significance similar to, but more extended than that of the older physiologists. According to him, the animal spirit is that most pure humor which flows through the medullary fibres of the brain, and the nervous fibres of the body. It is the intermediate essence between the soul and the body, the mediatorial substance which provides for a communication between the two. It partakes of the essence of the soul, and the essence of the body; that is to say, it is both spiritual and material. It is conceived and prepared in the cortical glands by a process thus described: The simple fibre arising from its own simple cortex pours into the minute cavity or chamber of the gland a substance of the purest kind, which is conceived

and born in the simple cortex (i. e. the substance of the soul). The finest vessels which constitute the other portion of this simple or vascular medulla, supply a lymph of the purest nature, capable of containing the purer corpuscles of the sulphureo-saline elements. The animal spirit is born of these two. The office of the animal spirit is indispensable to the human economy. Without it, the soul could never have constructed the simpler and middle organic forms of the body. Without it, the soul could do nothing in the body. It is necessary so that the soul may feel the changes that happen to the body. The nature of action and sensation, and even of the imagination and thought in an individual, is correspondent to the nature of the animal spirit. It makes us both spiritual and corporeal. Still more curiously the animal spirit is never absolutely similar in two individuals, nor in the same individual at different times. During the whole period of man's corporeal life, there is a perpetual circulation of the animal spirits from the cortical glands through the medullary fibres of the brain and the nervous fibres of the body into the blood vessels, and from these back into the cortical glands, and thence again into the fibres. There are 8 kinds of blood, the red blood, the pure or white blood, and the animal spirit. These 3 reign conjointly in the human body, and constitute all that part of man's life which is not purely vegetative. The globule of the red blood contains within it the white blood and the animal spirit, and the latter has the purest essence of the body, that is, the soul. The animal spirit acts on the blood and the blood on the spirit by means of the vessels and fibres, whence comes the alternate reciprocal action of the muscles. The animal spirit, therefore, according to Swedenborg, is the menstruum of the soul, which he terms the purest essence of the body, and that by which the coitus of the soul as the active, and the body as the passive principle is alone possible.—It is lately a theory of the more subtle and imaginative of those who believe the phenomena of table tipping and rapping to be caused by disembodied spirits, that it is by means of the animal spirit that spirits are able to use the organs of other bodies, and cause them to perform the various functions of speaking and action, or to cause a man to act from the proprium of another spirit, and not his own; or more briefly, that it is by the action of the animal spirit that man can have intercourse with the spirit-world. The theory of animal spirits is evidently tinged with the scholasticism of the earlier physiologists, but it has at least the merit of occupying a middle ground between the speculation of that era, and the exact method of modern physiology, which, in exploring the functions and forces of organic bodies, really offers to it no countenance, while it has not as yet given it a positive and emphatic denial. The accurate observations and discoveries of modern physiology have developed no reasons which tend to throw the ap-

pearance of probability about this theory. It remains only a philosophic speculation.

ANIMALCULES. Although this word can scarcely be said to belong to the nomenclature of modern zoology, we use it as more familiar to the general reader, and shall include under it a notice of some of the more minute forms of animal life, for knowledge of which we are mainly indebted to the microscope. The study of these beings began with the invention of the microscope, and has advanced, though not with equal steps, as that instrument has been improved. Leeuwenhoek led the way in this as in most other branches of microscopic study; but it is to Gleichen that we are indebted for the first attempt at the systematic study of the subject. He was followed by the Danish microscopist, O. F. Müller, who made the first regular classification of animalcules. As was to be expected, subsequent observation has detected many errors in the classification of Müller, and it has now little other than a historic interest. Yet from the time of Müller's publication (A. D. 1786), to the appearance of the first great work of the illustrious Ehrenberg, little or nothing was done to advance this branch of science. It is to Ehrenberg that we are indebted, directly or indirectly, for almost all our knowledge of these forms. It is very true that he has made many mistakes; that his classification has many and serious defects; nay, that his observations are often rather of what he thought he saw, than of what was actually before him; still, when the most liberal allowance is made for all his errors, it will remain true that he has, not more by his own studies than by the impulse and direction he gave to the studies of others, imparted a new form to the science. Since the appearance of his work, *Die Infusionsthierchen*, the study of minute animal forms has been ably pursued by Dujardin in France, Siebold, Koelliker, and others in Germany, Owen in England, and Bailey in our own country; and by their efforts, a vast amount of interesting and important observations has been collected. The study of alternate generation, by Steenstrup, Stein, and Agassiz, has thrown new and important light on the subject, the effect of which it is not yet possible to appreciate or even to foresee.—The earlier observers grouped together, under the term animalcules, a vast variety of living beings having actually nothing in common, except their minuteness of size. Plants and animals, mollusks, crustaceans, insects and worms, larvæ and perfect forms, all were aggregated together under the vague term of animalcules. The labors of modern scientific men have been in great part exhausted in the distribution of this mass of animal and vegetable life among the various classes, families, and orders to which its heterogeneous materials properly belong, and the formation of a class to which the name *infusoria*, first proposed by Müller, is now generally applied. To this class we shall confine ourselves, and shall generally use the term

infusoria, not that it is absolutely accurate, for though the greater number of these animals are developed in infusions; yet this rule is not without some striking exceptions.—If a drop of water in which animal or vegetable matter is decaying, be placed upon the object-holder of a microscope of adequate magnifying power, say 200 diameters, it will be found to swarm with living beings in active and incessant motion. They vary in size from the $\frac{1}{100}$ inch, when they are just within the limit of unassisted vision, to a minuteness which it tasks the power of the glass to detect. These are infusoria; they abound in every ditch, pond, lake, or river, are equally numerous in salt as in fresh water, have been found in thermal springs of high temperature, and in the melted snow of the Alps and the Andes; in short, wherever water and decaying vegetable or animal matter exist, these infusorial animals will be found in vast myriads. There is no doubt that they are often drawn up into the atmosphere in watery vapor, and borne to and fro by the winds. Many forms are not deprived of life by complete desiccation, and may therefore be mingled with the dust, and in this condition carried about by the winds, to resume their active vitality so soon as they chance to fall into water. The suddenness with which they appear in water, even distilled water, when exposed to the air, furnished the advocates of spontaneous generation with one of their strongest arguments; but this doctrine, so long universally received, and to which some naturalists, even of our own time, clung so tenaciously, has now no place in physiology. On the use of these minute forms, we find the following striking observations in Owen's "Hunterian Lecture," 1848: "Considering their incredible numbers, their universal distribution, their insatiable voracity, and that it is the particles of decayed animal and vegetable bodies which they are appointed to devour and assimilate, surely we must, in some degree, be indebted to these ever-active invisible scavengers for the salubrity of our atmosphere. Nor is this all; they perform a still more important office in preventing the gradual diminution of the present amount of organized matter upon the earth. For when this matter is dissolved or suspended in water, in that state of comminution and decay which immediately precedes its final decomposition into the elementary gases, and its consequent return from the organic to the inorganic world, these wakeful members of nature's invisible police are everywhere ready to arrest the fugitive organized particles, and turn them back into the ascending stream of animal life. Having converted the dead and decomposing particles into their own living tissues, they themselves become the food of larger infusoria, and other small animals, which in their turn are devoured by larger, as fishes; and thus a *pabulum* (food) fit for the nourishment of the highest organized beings, is brought back, by a short route, from the extremity of the realms of organic matter."

The study of animals which perform offices so important, ought not to be without interest.—Infusorial animalcules are very generally microscopic, though a few are, as we have before stated, just within the limits of human vision. They have neither vessels nor nerves, and are made up of a uniform tissue, called by Dujardin, *sarcoda*. This is, in some classes, of nearly uniform consistence; in others, the external layer possesses considerably more density than the internal, while, in yet others, a distinct pellicle or skin can be made out. They have no true feet; a few of the very lowest type have the power of protruding portions of their homogeneous structure in form of limbs, which they use both for the prehension of their food and for locomotion. In the higher forms, the locomotion is by cilia, or very minute hairs. This motion is probably automatic, as it is constant day and night, the animal never sleeping, nor appearing to take rest. Yet it certainly has in some cases many of the characteristics of spontaneity, the animal in his rapid course seeming to avoid obstacles. The whole subject of the character of the locomotion of these animals is very obscure, and must be studied and re-studied before any satisfactory conclusion can be reached. Some of these higher forms have a shell or outer coat called carapace or lorica—these are spoken of as loricated. Of the presence or absence of this lorica, Ehrenberg makes, as we shall see hereafter, great use in his classification.—We have already intimated, that the systematic classification of the infusoria has been matter of great difficulty. That of Ehrenberg, to which we shall in the main conform, though possessing great merit, has also very great defects. He includes among his infusorial animals, very many large and important families which are now known to belong to the vegetable kingdom. His *desmidiæ* are now very generally, we might almost say universally, admitted to be *algæ*; and if the same remark do not apply to his *diatomaceæ*, there is no doubt that the very great preponderance of scientific opinion is in favor of their vegetable nature. The classification of Dujardin, though it has some great advantages over that of Ehrenberg, is deformed and rendered difficult of use by a multitude of new terms, or, what is worse, old terms to which he affixes new significations. The two great obstacles which at present forbid even the hope of success in any attempt at systematic classification of infusoria, are: 1, the great difficulty of distinguishing the lower forms of animal from the corresponding forms of vegetable life; 2, that of deciding whether a given form is permanent, or whether we have to do with the larvæ of an insect, or some one of those forms which crustaceans, polypæ, and other of the lower animals assume in the progress of their alternations of generation. As to the first of these difficulties—to distinguish a low form of animal life from a vegetable: a motion apparently spontaneous was for-

merly supposed to decide the question in favor of an animal nature; but observation, by Vanher, of Geneva (1790), has long ago proved that a motion not to be distinguished from the spontaneous movements of animals, is common in the spores of the simpler aquatic plants, and is indeed nature's provision for their dispersion. That animals absorb oxygen and give out carbon, while plants give out oxygen and absorb carbon, affords, in the opinion of many naturalists, the desired test. But although this is a very general, it is not found to be a uniform law. Prof. Bailey, of West Point, indicated some years ago to the writer of this, more than one striking exception to it. A third distinctive mark, and probably the most useful, is found in the character of their nutritive material—plants being nourished by inorganic, animals by organic food. There are some exceptions to this rule also, but they are not numerous, nor do they greatly detract from its practical value.—As to the second source of difficulty—to distinguish the larval forms, and the varying shapes assumed by polypæ, &c., from the permanent form of the perfect animal: the difficulties from this source are very great, and the labors of successive naturalists are constantly adding to the number of orders and families which, having long been ranked among permanent infusoria, are found to be either larvæ, or some of the transition forms assumed in the process of alternate generations. Agassiz has satisfied himself that very many of Ehrenberg's genera are germs of aquatic worms, and he suggests that this is probably the true nature of all the infusoria. Should this idea prove well founded, the most essential changes will, of course, be necessary in the arrangement of the infusoria,—if, indeed, it is not found necessary to break up this class altogether, and distribute the individuals of which it is composed throughout the lower division of the animal scale. But meanwhile we shall adopt the classification of Ehrenberg, eliminating from it those families on whose vegetable nature the great mass of naturalists are agreed.—Ehrenberg divides the infusoria into *polygastrica* and *rotatoria*. The characteristic of the former is the appearance of certain internal cavities, which he supposed to be dilated portions of the alimentary canal, or stomachs; hence their name polygastric, or many-stomached. The rotifera, the so-called wheel animalcules, are distinguished by a peculiar arrangement of cilia upon lobes near the mouth, which, when in a state of active vibration, give to the lobes the appearance of wheels in rapid motion. These so-called wheel animalcules are, however, so widely different in their plan of structure, and so much higher in their degree of organization than the polygastrica, that naturalists have very generally separated them from the true infusoria. We shall, however, treat of both in the present article, influenced rather by a regard to convenience of reference, than to strict scientific accuracy of arrangement. We will first address ourselves

to the consideration of the polygastric infusoria of Ehrenberg, the true infusoria of later writers. It is unfortunate that the name polygastric, or many-stomached, is taken from a supposed peculiarity of the animal, the existence of which in any of the class has been rendered by later researches more than doubtful, and the absence of which in some families is admitted by Ehrenberg himself. By retaining this name, we commit two verbal inconsistencies: 1, in calling animals many-stomached, which have probably no stomach at all; and 2, we form a subdivision of these polygastrics, the characteristic of which is, the absence of any digestive tube. Great as these objections to Ehrenberg's nomenclature doubtless are, they appear to us lesser evils than to burthen the subject with new names, or to confuse it by new classifications. Following Ehrenberg then, we base the first great division of the polygastric infusoria on the presence or absence of an alimentary canal. Those in whom it does not exist, he calls *anentera*, those in whom it does, *enterodela*. Of the *anentera*, some have the power of protruding a portion of their homogeneous bodies as a foot-like process, and of these, some have a shell, or, in scientific phrase, are loricated; others are non-loricated. The former are called *arcellina*, the latter *amœba*. Of the remainder, some are furnished with cilia, others are not. To the former, the term *dinobryina* is applied when they are loricated, and *astasia* when they are not. The non-ciliated, in like manner, are called *peridina*, when loricated, and *cyclidina* when naked. The *enterodela*, or *polygastrica*, having a digestive canal, are divided in the same way into two parallel series, as they have or have not a lorica or shell. First in this parallel series are placed those where the orifice of the digestive tube is single; these are *orticellina* and *ophrydina*. Next come those with two orifices at opposite ends of the body; these are *enchelia* and *colepina*. Next are those where the two orifices are irregularly placed, the *aspidiscina* having no shell, the *trachelina* and *ophryoceroina* each having a shell; but the former having a proboscis but no tail, the latter a tail and mouth anterior. Lastly, those having two ventral orifices; the *euplodia*, where the shell is present, and the *colpodia* and *oxytrichina*, the former moving by cilia, the latter by other organs, neither having a shell. A diagram will perhaps make this classification more intelligible.

POLYGASTRIC ANIMALS.

ANENTERA, having no digestive tube.

	Loricated.	Non-loricated.
A. Protruding part of their bodies like feet,	ARCELLINA.	AMÆBIA.
B. Having cilia,	DINOBRYINA.	ASTASIA.
C. Non-ciliated,	PERIDINA.	CYCLIDINA.

ENTERODELA, having a digestive tube.

A. One orifice to the digestive tube,	ORTICELLINA.	OPHRYDINA.
B. Two orifices at opposite ends of the body,	ENCHELIA.	COLEPINA.

C. Two orifices placed irregularly,	TRACHELINA, having a proboscis but no tail, ASPIDISCINA.
	OPHRYOCEROINA, having a tail and an anterior mouth.
D. Having 2 ventral orifices, EUPLODA,	KOLPODIA, moving by cilia.
	OXYTRICHINA, moving by other organs.

Leaving now the subject of classification, let us turn to the study of the structure and mode of life of these minute forms.—*Structure*. We have already stated that neither nerves nor vessels have been discovered in infusoria; indeed, in the very lowest class, the *amœba* and *arcellina*, which are by Dujardin called *rhizopoda*, and by other writers *pseudopoda*, we find life manifesting itself almost without organization. The *amœba* is a jelly-like mass, without determinate shape, in texture nearly uniform, having no integument; in fact, only differing from a mass of jelly in being slightly more fluid in the centre than at the circumference, and having at some point near its surface a vesicle, perhaps only a vacuole, which pulsates pretty regularly. When this creature is about to move, a current of the more fluid central portion is seen tending toward some one point of the circumference; soon a portion of the mass protrudes, it elongates till perhaps double the length of the animal, the mass of whose body then seems to pass into the protruded and elongated portion, and thus locomotion is effected.—The mode of taking food is thus described by Koelliker, who studied it in the actinophrys, a genus closely allied to the *amœba*, and, like it, made up of a mass of jelly, portions of which, scarcely at all differing from the general mass in structure, are protruded in the form of rays. "The mode in which the actinophrys is nourished, is one of the highest and most special interest. Although the creature has neither mouth nor stomach, yet it takes in solid nutriment, and rejects what is indigestible. This miracle, for so it may almost be called, is thus effected: When in its progress through the water the actinophrys approaches any small plant or animal—a minute crustacean, rotifera, the young of cyclops, or the lower *algæ diatomaceæ* for instance—as soon as the mass is touched by one of the rays of the actinophrys, it seems to adhere to it; the ray now slowly shortens itself, and draws its prey to the surface of its own body; the surrounding filaments attach themselves to it, bending their points together, and closing over it till it is enclosed on all sides. Gradually a cup-like cavity is formed in the body of the actinophrys, at the base of the ray, and into this the prey is crowded, till the cavity still growing deeper, the whole mass comes to be embedded in the very substance of the animal, which gradually closes around and over it, and thus the mass comes to be contained in a cavity or stomach formed for its reception. Here it is digested, and its nutritive portions absorbed; and when this is accomplished, the undigested portion, if any such

remain, is protruded toward the surface, and finally emerges from the body of the animal as it might from a mass of jelly; the opening by which it escaped closes behind it, and the animal resumes its pristine form and condition." Such is the mode in which nutrition is effected in these animals, or, as they may be called, these masses of animal matter. Of their mode of reproduction, we only know that they multiply by self-division, and that when portions of the mass are cut or torn away, these maintain an independent existence, and soon acquire the shape and functions of mature animals. Of its proper sexual reproduction we know nothing, although all analogy leads us to suppose that this multiplication by division, whether spontaneous or artificial, must have its limit, and a proper sexual reproduction by germ and sperm cells be interposed.—Ascending in the scale, we come to those polygastric infusoria who have a proper digestive canal—the *enterodela* of Ehrenberg. Though the existence of an alimentary canal is made the characteristic of this group, its presence in any of the genera is by no means certain. All have beyond controversy a mouth into which food is taken, and many have an anal orifice, from which excrement is discharged; but whether there is any canal with definite walls through which the food passes, as in the higher animals, is doubted by many naturalists, and denied by not a few. Ehrenberg indeed traced the course of the canal passing very nearly straight in the length of the animal's body in some genera, convoluted in others, and in a third class winding in a spiral around the inner surface of the body, with flask-like appendices communicating with its cavity, and making up the great mass of the body. But the disciples of Ehrenberg, working with the best modern improved microscopes, have not been able to satisfy themselves of the existence of this so-called digestive tube. A mouth and a short, generally ciliated, oesophagus, these animals certainly have; but the existence of an alimentary canal, beyond this short gullet, is very doubtful.—The infusoria of this class differ from the *amabae* and other *rhizopoda*, in that they have a true investing membrane or skin, which in some families can be detached as an independent membrane; and from the internal surface of this membrane partitions are sent off, which divide the general cavity of the body into separate chambers. In these the jelly-like tissue of the animal, the *sarcode* of Dujardin, is lodged; and into these chambers the food, when it has escaped from the oesophagus, is received; it passes from one to the other till it has made the circuit of the body, not, however, with much regularity, and is in its course digested; and all of its alimentary substance being absorbed, the residue is ejected either by the mouth or by an anal orifice. Thus is the function of digestion performed in the *enterodela*. It was stated in the definition of the infusoria, that they have no nerves or blood-vessels. Nervous matter has

certainly never been detected in any of the class; and although Ehrenberg supposed that two colored—generally red—spots, which are found pretty constantly near the anterior part of the body, are eyes, yet, as he was equally confident of the existence and nature of these spots in some forms which undoubtedly belong to the vegetable kingdom, it is probable that he was in error as to these. As to vessels, though they certainly do not exist, yet in most polygastric infusoria, small vessels which appear to contain a clear, nearly colorless fluid, are found which contract regularly, enlarging when full, and when empty contracting, so as to be scarcely visible. Their number varies from a single one to ten or twelve; they usually occupy the same place in individuals of the same species, and their contents seem sometimes to be propelled from one to the other. They are probably receptacles of nutrient fluid stored up for the use of the system. Another remarkable peculiarity of the infusoria is, that in the very substance of their bodies may generally be found a solid granular-looking mass of very variable form—round, oval, curved, or even, in some cases, branched—by some called the nucleus. By Ehrenberg it was said to be a testis; and although this opinion has found little favor with the more recent observers, yet that this peculiar mass has a very important connection with the reproductive function, cannot be denied. When the infusoria are about to multiply by self-division, the separation always begins in the nucleus; may not this so-called nucleus be a mass of germ cells, such as we see in those insects which, after one sexual connection, continue throughout a succession of generations to bring forth young, till the mass of germ cells is exhausted, and a second sexual act is necessary to continue the multiplication of the species? In none of the infusoria has any muscular or contractile tissue been found, though the very lowest form, the *amabae*, possesses the function in an eminent degree. Here, as ever in the animal scale, function precedes organization; and the function of muscular contractility is manifested while there is as yet no appearance of muscular tissue. The stalk of the vorticella forms a notable illustration of this rule, as it possesses contractility in a remarkable degree, yet no muscular tissue is to be found in it.—Reproduction is effected in different ways in the different forms; the mode which has been best studied is that by spontaneous self-division. This is sometimes longitudinal, sometimes transverse. As before stated, it begins in the nucleus, and this body is often completely divided while the line of future separation has scarce begun to appear on the surface of the animal. These subdivisions are completed in so short a time, that Ehrenberg has calculated that no fewer than 268 millions may be produced in the space of one month from a single individual. Another mode in which new individuals are formed, is by what is called conjugation. Two individuals attach

themselves together, till at length their entire bodies coalesce and form one, in the interior of which a new individual is formed, and in process of time discharged from the parent body, either by splitting or through some orifice. Is not this a true sexual act? Yet another mode of reproduction has lately been observed by Stein and other microscopists. It has been called the encysting process; and although it has been studied in relation to but few forms, yet the facts already established render it very probable, that many, if not indeed all the infusoria, multiply by this or some closely allied process. An infusory animal about to become encysted, secretes from the surface of its body a thick glutinous substance, which, gradually hardening, forms a firm case in which the animal is shut up, but not so closely as to prevent tolerably free motion. A change now takes place in the animal itself—the cilia upon its surface are retracted, the body assumes a pretty regular circular outline, then either the whole body, or the nucleus only, breaks up into many small fragments, each of which assumes an independent life, and moves freely in the parent organism; this mother-cell now bursts, and is disintegrated, while the young brood swim forth either in the form of the parent, or in some transition shape, from which, through one or more changes, they pass into the permanent type identical with the parent organization.—*Rotifera or Wheel Animalcules.* These have little in common with the order of infusoria of which we have spoken, being both more highly organized and formed on a different plan. Even in respect to size they differ, being generally much larger, some having a length of half a line, and many being within the limit of unassisted vision. Their resemblance is to worms, and by many naturalists they are classed with the articulated animals, under the term of cilio-articulata. Their name, as we have already stated, is derived from a particular and very curious arrangement of the cilia covering two lobes near the anterior extremity, which, when in motion, have exactly the appearance of two minute wheels rotating very rapidly. But this, though a striking peculiarity of many rotifers, is not common to them all. In some, the cilia about the head are arranged in a wavy line so as to give no resemblance to the wheel. The rotifera may be defined minute worm-like animals, very transparent, without legs, having the anterior portion of the body furnished with certain retractile lobes, the margins of which are covered with cilia, the alimentary canal distinct, and having two orifices, the mouth having a true dental apparatus, the reproduction by ova only. They are aquatic, though a few species can exist in moist earth. They are found alike in salt and fresh water, but rarely in that which is rendered foul by decaying vegetable and animal matter, and which swarms with the polygastric animalcules. It is only when these have devoured the decaying matter, that the rotifer appears to feed upon them.

Rotifera have great tenacity of life, and are not destroyed by complete and long-continued desiccation. Individuals have been kept in vacuo with sulphuric acid and chloride of lime, thereby insuring the utmost possible amount of dryness for a month, and yet revived on being placed in water. The rotifera have always two investing membranes, both transparent, and the inner always flexible; the outer is in many quite firm, constituting a horn-like tube, from which the head and tail of the animal protrudes. It never contains either lime or silica, which is probably the reason why no trace of these animal forms are found in any fossiliferous rocks. Their bodies are retractile, and many creep like worms. They swim by means of their cilia very rapidly. Near the tail is, in most forms, either a dirk or a claw-like process, by which the animal can attach itself, but it lets go its hold on the instant, and swims off rapidly. The gullet is furnished at its inferior portion with a masticating apparatus consisting of two strong semi-circular jaws, each furnished with from 1 to 5 teeth, which appear to contain mineral matter. The stomach is sometimes globular, at others tubular, and scarcely distinguishable from the intestine below. Near the anus, the intestine is enlarged into a sort of cloaca with which the genital apparatus communicates. Several small glandiform bodies are observed near the alimentary canal, and some undoubtedly communicate with its cavity. It is a curious fact, that though the digestive apparatus is in most of these animals much more fully developed than any other, yet in one genus described by Mr. Dalrymple (*Philosophical Transactions*, 1849, p. 389), no anal orifice was found, and indeed scarce any intestinal canal; so that the excrementitious food must have been ejected from the mouth, as in some of the very low polygastric forms. So strangely does nature sometimes return upon her steps, and degrade, in one respect, an animal constructed upon a higher type even below the level of those which by their general structure, occupy a very inferior place in the chain of animal life.—We now come to locomotion. Several distinct longitudinal bands of a highly contractile tissue pass the entire length of the animal, and certain transverse bands have probably the same power. It is, however, very doubtful whether any true muscular tissue with the characteristics by which we identify it in the higher animals, exists in these animalcules. The same remark applies to the nervous system. The function is certainly performed; but whether the cords and masses which Ehrenberg describes as nerves and ganglia really have that character, is at least uncertain. Two red spots near the head are supposed, on pretty strong evidence, to be eyes, or at least rudimentary forms of the organ of vision. There is no proper circulatory apparatus, but water is very freely admitted into the body, and probably serves to aerate the tissues. It is kept in motion by cilia lining the tubes into which it is

received.—*Reproduction.* All that is certainly known upon this subject is, that the rotifera multiply by true ova, and never by gems, buds, or spontaneous splitting, like the polygastrica. Until recently they were generally supposed to be hermaphrodite, but some late observers believe them to be unisexual. Ovaries are made out without difficulty, and in the vast majority of individuals; but spermatozoa have been found in only a very few, perhaps only one species. If males exist as a separate sex, they are probably only developed at one period of the year, and their term of existence is very short. This is rendered probable by a very curious observation made by Mr. Dalrymple. He found in one genus male individuals, that possessed neither mandibles, nor alimentary canal, nor glands. The only apparatus that was fully developed was the generative. The animal was in fact a mere male genital system, endowed with power of independent existence, though that existence must have been of very short duration. The transparency of the tissues enables us to trace very satisfactorily the formation and progress of the ova. Their growth is very rapid, and they are in some genera extended from the ovary 2 or 3 hours after their germ is first detected, and hatch in less than half a day. In other families the eggs remain in the ovary or cloaca, and are there hatched, the young being born alive. From the transparency of all the tissues, it is often possible to trace the form, and, to a certain extent, make out the details of the structure of the young animal while it is yet in the body of the parent.

ANIMÉ, a resin supposed to be derived from the *hymenaea-courbaril* of South America. It exudes from wounds in the bark, and collects between the principal roots. This resin is soft and sticky, and melts easily, diffusing white fumes, and a very pleasant odor. Insects are generally entrapped in such numbers in it, that it is said to well merit its name of animated. The Brazilians use it internally in diseases of the lungs. It was formerly employed in the composition of ointments and plasters, but at present its only use is for varnishes and incense.

ANIOOY, or ANIUT, GREATER and LESSER, two rivers in the N. E. of Siberia, in the country of the Tchouktchees. The former rises in lat. $67^{\circ} 10'$ N. and the latter in lat. $66^{\circ} 30'$ N., and both flow westerly, and gradually converge till they join the Kolima together at lat. 68° N., after a course of more than 250 miles each. The lesser Aniooy is a capricious mountain stream, subject to sudden overflows, and sometimes changing its course for miles. The banks of the larger river present a dreary appearance, and are covered with huge sand hills, held together only by the frosts which the summer fails to dissolve. The current is rapid, over a bottom strewn with sharp-pointed rocks, rendering the navigation of the stream very dangerous.

ANISE SEED is the fruit of the *pimpinella anisum*, a native of Europe and Africa. It

is extensively employed as a carminative medicine, and for the purpose of flavoring liqueurs, or giving an agreeable flavor to other medicines. It yields an aromatic oil both by distillation and expression, which is used for the same purpose as the seed, and is also a favorite article with vermin-killers, who employ it to disguise the scent of poisonous baits. The anise-seed cordial of the shops is a compound of alcohol, anise-seed, and angelica. The plant is cultivated in Malta and Spain, and grows spontaneously in Egypt and the islands of the Grecian Archipelago, especially Scio. The genus *pimpinella* belongs to the umbelliferous tribes of plants inhabiting the meadows and the mountains of Europe and Africa.

ANISON, the name of an eminent family of French printers, 4 of whom were successively directors of the royal printing-office during the 18th century. One of them added to his patronymic the surname of Duperon, from an estate which he purchased. The last of the 4 was ETIENNE ALEXANDRE JACQUES, who succeeded his father in 1788. After Aug. 10, 1792, he sent in his resignation, but, although living very quietly, he was arrested during the reign of terror, and died on the scaffold in 1794.—His son, ALEXANDRE JACQUES LAURENT, a political economist and former peer of France, was born Oct. 1776. At the age of 30 we find him intrusted with important missions to Germany, and subsequently prefect of the department of the Arno, whence in 1809 he was summoned to Paris to superintend the imperial printing office, a position similar to that filled by his ancestors previous to the revolution. The privileges and monopolies connected with this office having been removed after the restoration of the Bourbons, he resigned it, and about the year 1827 began to devote himself to the study of political economy. In 1830 he was elected to the chamber of deputies, and between 1838 and 1842 represented the department of the Lower Seine in that body. In 1844 he was made a peer. He belonged to the party of Guizot and Casimir Périer, from whom, however, he differed in advocating a system of free trade, not absolute or unrestricted, but subject only to such imposts as would supply the necessary revenue for government. He was totally opposed to protection, and considered free trade the best means of developing the industry of a nation. He has published several pamphlets and treatises on political economy, beside some important legislative reports.

ANTIOHKOK, DIMITRI SERGEWITCH, a Russian mathematician, born about the year 1740, died May 1, 1788. In 1771, he was appointed a professor in the university of Moscow, a position which he seems to have occupied until his death. In 1785 appeared his work on pure mathematics, afterward enlarged to 4 volumes, and treating of arithmetic, geometry, theoretical and practical trigonometry, and algebra. He

published several other treatises on science and metaphysics, in Latin and Russian. His "Philosophical Discussion on the Origin and Progress of Religion" was condemned, and publicly burned in Moscow.

ANJAR, a town and district in the province of Ouch, presidency of Bombay. The district is arid, watered by irrigation drawn from tanks which are sunk by the government, and by this means a considerable quantity of previously useless land has been brought into cultivation. The capital is a fortified though not a strong town, and contains about 10,000 souls. In 1819, a large part of the town was thrown down by an earthquake.

ANJENGO, a seaport town of Hindostan, province of Travancore, 18 miles from Cape Comorin. It was one of the early settlements of the East India company, and their factory was continued from 1684 until 1813, when it was abolished. The place is known for the manufacture of coir cable. Spices, drugs, and coarse goods are exported.

ANJOU, province, county, and afterward duchy of (Lat. *Pagus Andegavensis*, or *Adicaensis ager*, or *tractus*), an ancient province of France (whose capital was Angers), 20 French leagues in breadth by 80 in length, bounded on the N. by Maine, on the E. by Touraine, on the S. by Poitou, and on the W. by Bretagne. In the time of Cæsar it was inhabited by the Andes, or Andegavi, who gave their name to the district which they inhabited; they were reduced and annexed by Cæsar. Childeric, the Frankish king, seized Anjou from the Romans. Under the Carolingians it was divided into two counties; one was the county of Anjou so called, the other that of Outre-Maine, or the Angevin marches. With Henry Plantagenet, count of Anjou, afterward Henry II. of England (1154), the county of Anjou became part of the French possessions of the English sovereigns. In 1204 John Lackland lost it to the French monarch, and it became part of the crown domain. In 1246 Louis IX. invested his brother Charles with it. In 1356 the kings of France erected the county of Anjou into a duchy. When René of Anjou was driven out from Naples and Aragon, Louis XI. took occasion to annex the duchy of Anjou to the French crown (1480). From this time Anjou gave a title to a younger son of the royal family of France. The last duke of Anjou was the second son of Louis XV., who died young, in 1738. At the division of France into departments, the province of Anjou constituted the whole of the department of Maine and Loire, and the departments of Indre and Loire, Mayenne and La Sarthe, in part.—The counts and dukes of Anjou were among the oldest and most celebrated nobility of France. At different times of the middle ages, they gave kings to France, England, Spain, Naples, Hungary, and Poland. These Angevin princes were, in short, in feudal Europe, somewhat like the Coburgs in modern Eu-

rope. Charles the conferred the dign. Ingelger, one of his sons were general united the two oc (888). Fulke V. (married Melissende, king of Jerusalem; his father-in-law of Geoffroy V., called wearing a piece of his helmet, was the berga of Maine, and As husband of Mati Henry I., he claim was baffled by Stey son was Henry II. Thus was the first The second family of Charles, brother was afterward king Sicilian house of A 1481, in the person king of Naples, Sici

ANKARA, a king ing the eastern side Amber to lat. 14° 21' a series of well shelt hilly. The shores a the only parts inhab

ANKER, a measu merly in use in the 10 old wine gallons,

ANKER, a disting of whom BERNHARD the most noteworthlomatic service of enter into trade. He the largest merchant ships sailed in every ing interests of Norw foundery at Moss, for Christiania, and was age, and made chamb mark and Norway.—jurist, born in 1710, c fessor at the univers quently member of th ish consistory. He v works on Danish, No

ANKLAM, a tow rania, with a small habitants, with 8 chu poor-houses, market g and linen factory, a The circle of the sam census of 1849, cont Its chief stream is the for the most part fr spots. The chief occu is agriculture and catt

ANKOVA, a kingd pying the centre of t rice and cotton.

ANNA CARLOVNA, beth Catharina Christi

wig, prince of Mecklenburg, and Catharina Ivanovna, daughter of the elder brother of Peter the Great, was a niece of the Empress Anna Ivanovna. She was born in 1718. By the advice of her aunt she adopted the Greek religion in 1732, and in 1739 married Antony Ulrich, prince of Brunswick-Wolfenbüttel. They had, in 1740, a son Ivan, whom the Empress Anna designed as heir to the Russian crown, appointing Biron regent. After the death of the empress the same year, Anna Carlovna overthrew the regency of Biron, and took affairs into her own hand, declaring herself grand-duchess. A few months later she was overthrown by Elizabeth, daughter of Peter the Great, who was declared empress. The boy Ivan was shut up in the fortress of Schlösselburg; Anna, her husband, and a daughter were sent to Oholmogory, an island in the Dwina, near the White sea, where she bore 8 children. The epoch of her death is unknown, but her husband survived her for a long time. Catharina II. sent the children to Jutland, where they died previous to 1807.

ANNA COMNENA, born Dec. 1, 1088, died in 1148. She was the daughter of Alexis Comnenus and the Empress Irene. She was married to Nicephorus Bryennius, a Greek nobleman of distinction, whom she incited, after the death of her father, to conspire against her brother, and seize the sceptre. The conspiracy failed, and Anna and her husband were banished from Constantinople, and stripped of the most of their property. Anna was possessed of great talents and acquirements, and during her exile composed a biography of her father, the emperor Alexis I., which she styled "Alexias." This work is divided into 15 books, and though very defective in many respects, is yet of great importance as a history of the period of which it treats. The best edition of "Alexias" is Schopen's, published at Bonn in 1839.

ANNA IVANOVNA, empress of Russia from 1730 to 1740, born 1698, died Oct. 23, 1740, was the daughter of Ivan, the eldest brother of Peter the Great, and married the duke of Courland, who died previous to her ascending the throne after the death of Peter II., grandson of Peter the Great. Osterman, the great chancellor, and the then all-powerful prince Dolgoroucki facilitated her elevation over the heads of two daughters of Peter the Great, as Anna promised a kind of constitution or limitation of the autocratic power. But Anna had in Courland a common groom for a lover, whom she brought to Moscow. This was the celebrated Biron, who prevented her from keeping her promise, exiled the Dolgorouckis to Siberia, and ruled absolutely over the empress and the nation, leaving the most bloody and fearful record in the annals of Russia. He introduced and organized the system of espionage or secret police over all classes and sexes, officials and private individuals, acts and words, which since that time has formed one of the

principal instruments of the government of Russia, until it was recently abolished by Alexander II. Anna obliged the Courlanders to choose Biron for their sovereign duke, and on her death-bed named him regent during the minority of her nephew Ivan, the nominal successor; but a revolution overthrew him, and he was exiled to Siberia.

ANNABERG, a mining town of the kingdom of Saxony, in Erzgebirge, 2,800 feet above the sea level. Silver, tin, and cobalt are mined here, and lace and silk ribbons are manufactured. Pop. 6,780.

ANNAH, a town of Turkey, situated on the river Euphrates. It is about 160 miles N. W. of the city of Bagdad, and the capital of a sanjak. The caravan route from Bagdad to Aleppo lies through the town. It has 1,800 houses, and a population estimated at 5,000.

ANNALS, a concise and unadorned narrative of events, written in the order of time. In the early days of Rome, the *pontifex maximus* kept a record of state affairs, prodigies, and the markets, which, written upon a white tablet, in some convenient portion of his house, was displayed to the public inspection of the people. These records were called *annales maximi*, and were written up to the pontificate of Publius Mucius Scaevola, 181 B. C. When the Gauls burnt the city, B. C. 390, the greater portion of those previously written were destroyed, which will account for the uncertainty resting upon the history of Rome in its early days. Subsequently, other individuals composed portions of Roman history, imitating in style the pontifical annals. The first of these works, which was written by Quintus Fabius Pictor, commenced with the founding of Rome, and came down to the author's own time, during the second Punic war.—The Chinese assert that they possess annals of a date as ancient as 2,000 years before the commencement of the Christian era. But Chinese assertions concerning the antiquity of their country are generally to be received with some incredulity.—There has been much discussion concerning the real difference between annals and history. Some have considered that history proper comprises only those events which occur during the author's lifetime, while annals may contain events as far in the past as the writer chooses. The writings of Tacitus are said to be examples, but it may be doubted if Tacitus himself ever made such a distinction between his works. Grotius made such a division in his own "History of the Netherlands." The more general opinion is, that annals contain a mere record of events in strict chronological order, without any adornment or formal episodes on the part of the author; while history traces back events to their causes, and contains the philosophical and moral reflections of the historian; and is embellished by all that can render it attractive, without any sacrifice of truth.

ANNAMOOKO, or New Rotterdam, one of the Friendly islands. It is highly cultivated

by the natives, and produces yams and plantains. The bread-fruit and cocoanut grow spontaneously here; lat. $20^{\circ} 15' S.$ long. $175^{\circ} 2' W.$

ANNAN, a parliamentary borough, town, and parish, on the Annan river, near the Solway Frith, 75 miles south of Edinburgh, Scotland. The river is navigable for large vessels to within half a mile of the town, where are taken out salmon in great abundance.

ANNAPOLIS, a city and port of entry in Anne Arundel Co., Maryland, the capital of the state, named in honor of Anne, queen of England. The city was incorporated in the year 1708, and for a long period before Baltimore was at all noted, Annapolis was the seat of wealth, refinement, and extensive trade. It has, however, lost nearly all of its commercial importance, and is now chiefly distinguished as the seat of the state government, and of the United States naval academy. It is beautifully situated on the Severn river, about 2 miles from its junction with the waters of the Chesapeake bay. The latitude of the state-house is $38^{\circ} 58' N.$ longitude $76^{\circ} 29' W.$ Population, 3,600. The city is connected with Baltimore and Washington by railroad; distance from Baltimore S. by E. 28 miles, and from Washington E. by N. 40 miles. The plan of the city bears some resemblance to that of the national capital, all the streets radiating from 2 points, the state-house and the Episcopal church. Its appearance is interesting from its air of quiet seclusion, and the antique look of many of the houses, with their peculiar style of architecture, gives the stranger an impression of some old European town, rather than that of an American city. Annapolis contains the official residence of the governor of Maryland, who is obliged to reside in the city during his term of office. This is a large and elegant structure. Memorials of the former wealth and state of the place are found in many ancient and extensive mansions, with large ranges of stables and offices, but now gone to decay and some of them uninhabited. The chief feature of the place of modern date is the naval academy, established during the presidency of Mr. Polk, the Hon. George Bancroft being secretary of the navy. The plan of instruction for candidates for the navy is similar to that of West Point for the training of officers for the army. Candidates (who must be over 14 and under 18 years of age) are admitted to the institution after passing a thorough physical examination, as well as an examination in the elements of an English education. They remain in the institution 4 years, under thorough discipline and instruction in all the branches of the naval profession before they are examined for admission to the navy as midshipmen. The academic board is composed of the superintendent of the institution, who must be an officer of the navy, not below the rank of commander; the executive officer, or commandant of midshipmen, who must be either a commander or lieutenant in the navy, and who dis-

charges the duty of instructor in seamanship, naval tactics, and practical gunnery; and the professors of mathematics, of astronomy, navigation, and surveying, of natural and experimental philosophy, of field artillery and infantry tactics, of ethics and English studies, including international law, of the French and Spanish languages, and of drawing and draughting. The grounds connected with the establishment are extensive, containing buildings for recitation and lecture-rooms, mess-rooms, dormitories, officers' quarters, a philosophical hall and laboratory, and an astronomical observatory. The observatory contains an equatorial telescope, constructed by Clark of Boston, with a fine achromatic lens of $7\frac{1}{2}$ inches clear aperture, and $9\frac{1}{2}$ feet focal length; an excellent meridian circle by Repeold of Hamburg, and a very complete collection of the minor instruments used by the travelling astronomer, the surveyor, and the navigator. There is also a carefully selected library of 7,000 volumes, which is regularly increasing at the rate of about 1,000 volumes per annum. The grounds were formerly under the charge of the war department, being attached to Fort Severn, which is now enclosed and covered with a roof, and in which cannon are mounted and exercised in firing, as between the decks of a man-of-war. A sloop of war is attached to the institution, used during the summer months as a practice ship, and sailing upon an ocean voyage. St. John's college, founded in 1784, has lately undergone reorganization, but the number of students is very small. Number of alumni, 158. Volumes in library, 3,292. The state-house, standing on an eminence, is a noble and massive structure of brick with a lofty dome and cupola. It contains the halls of the legislative assembly as well as the state library and records, but few of these, however, dating back to a remote period of the province. It is noted, also, for being the scene of Washington's resignation of his commission as commander-in-chief, Dec. 23, 1783. The government of Maryland, has lately given an order for a large painting commemorative of this interesting event, to Mr. Edwin White, of New York. Of distinguished men, Charles Carroll of Carrollton, one of the signers of the declaration of independence, and William Pinkney, a famous lawyer, were born in Annapolis.—ANNAPOLIS, a fortified seaport town of Nova Scotia, in a county of the same name, on the bay of Fundy, 95 miles west of Halifax, and the first European settlement in that part of North America. It was settled by the French in 1604, under the name of Port Royal, but was twice taken by the British, once in 1614, and again in 1710, by expeditions fitted out from New England.

ANN ARBOR, a flourishing town of Michigan, the capital of Washtenaw county, about 40 miles W. of Detroit, on the Huron river and Michigan Central railroad. The town is regularly laid out, and well-built, and its site is

pleasant and healthy. It is the centre of an important agricultural district, has a brisk trade, and manufactories of ploughs, iron, wool, and flour, the motive power of which is supplied by the river. The town contains also several churches, an academy, and a bank, and is the seat of the state university, for an account of which see MICHIGAN UNIVERSITY. Pop. in 1850, 4,868.

ANNAT, FRANÇOIS, a French Jesuit, born at Rodez, Feb. 5, 1590, died at Paris, June 14, 1670. He was teacher of philosophy and theology for 80 years at Toulouse, and afterward in the service of the pope in Rome and France. He was confessor to Louis XIV. from 1654 for 16 years, when he was dismissed at his own solicitation. He was distinguished for his ardent opposition to the Jansenists, and was warmly controverted by Arnauld, Nicole, and Pascal. He was a man of great disinterestedness, and never allowed his influence at court to be used for the promotion of his family. His controversial writings are celebrated for learning and ability.

ANNATES. This is a term used in 3 senses. I. In Scottish law, since 1672, it signifies the half-year stipend given by law to the executors of deceased ministers. It is not in any sense the property of the minister, either before or after his decease. II. The annates or annats were originally, in the church, certain funds which by ecclesiastical law were paid, on the decease of a minister and the accession of a new incumbent to the living, by the incumbent to the pope. At first the annates were paid to the pope, and, as the name indicates, amounted to the yearly stipend from the living, and were required in one instalment. They were afterward paid in two. In England they were at first paid to the archbishop of Canterbury. The popes afterward appropriated them. The English parliament (1532) bestowed them on the crown, but they were afterward restored to the church, and destined to the support of the poorer livings. The annates are abolished in Ireland. III. Annates in Germany are synonymous with the *servitii*, a very early form of taxation in the western church.

ANNE, queen of Great Britain and Ireland, the last member of the house of Stuart who sat upon the English throne; born at Twickenham, near London, Feb. 6, 1664, died Aug. 1, 1714. She was the second daughter of James II., then the duke of York, by his first marriage with Anne Hyde, the daughter of the illustrious Clarendon. Though both of her parents became attached to the Roman Catholic church, she was educated in the principles of the church of England, and in 1683 was married to Prince George, brother of Christian V., king of Denmark. It was for some time a matter of doubt and deep anxiety what part she would take in the contest which distracted England between James II. and the party of the prince of Orange. But the influence of the vehement duchess of Marlborough, for

whom Anne had a romantic fondness, at length made her decide the question against the promptings of her filial affection, and in favor of what she deemed the interests of religion. She renounced the purpose of accompanying her father in his exile, adhered to the dominant party, and, by the act of settlement, the British crown was guaranteed to her and her children in default of issue to William and Mary. She lived in retirement till the death of William, and the friendship between her and the king and queen was only formal. Of the 17 children whom she bore to her husband, only one survived infancy, the duke of Gloucester, who died in 1700, at the age of 11. On the death of William in 1702, Mary having previously died without heirs, Anne ascended the throne. The feebleness of her character did not promise the grandeur of the events by which her reign was distinguished. She pursued the plans of her predecessor against the ambition of Louis XIV., and on the day of her coronation the triple alliance was renewed between England, Holland, and the German empire, against France. This began the war of the Spanish succession, in which Prince Eugene and Marlborough, by the brilliant victories of Oudenarde, Ramillies, and Blenheim, drove the French troops from the Danube across the Rhine, and spread terror even along the banks of the Seine. In the battle of Malplaquet, the son of James II., the chevalier St. George, charged, at the head of the French cavalry, the army of his sister Anne, commanded by Marlborough. The most important conquest made by England in this war was the fortress of Gibraltar. The great political event of the reign of Anne was the union of England and Scotland, completed July 27, 1706, into a single kingdom, under the title of Great Britain. This result, which had been vainly desired and attempted by James I., Charles II., and William III., was a victory achieved by the whig party over the national prejudices of the two countries. Scotland retained her religious and civil laws, but her political existence and commercial interests were combined with those of England, and she was to be represented in the British parliament by 16 lords and 45 commoners. In 1710 the popularity of Marlborough, who had been for 8 years the idol of the queen, the parliament, and the people, began to wane, and the duchess of Marlborough lost her majesty's confidence. The Tories, who now had in their ranks the ablest statesmen and the most effective writers, increased in power, and the Whigs completed their own ruin by the prosecution of Dr. Sacheverell for preaching in favor of the divine right of kings. In the new election the Tories were successful, a new ministry was formed, in which Harley, afterward earl of Oxford, and Lord Bolingbroke, were the chiefs, and a new favorite, Mrs. Masham, the daughter of a London merchant, reigned at court. It was determined to conclude peace, and the fruits of the war, not

less than the allies of England, were neglected in the treaty of Utrecht, signed April 11, 1713. The new leaders were not harmonious, and though the crown had been settled, in the event of Anne's death without children, upon the princess Sophia of Hanover, the granddaughter of James I., yet the court and courtiers were occupied with intrigues to give the succession to the son of James II., James, the chevalier St. George. The queen, wearied with the wrangling and cabals of her ministers, suddenly died, and her death, at a moment when the plans of Bolingbroke were immature, perhaps was the means of securing peacefully to England the Protestant succession. Queen Anne was deficient in mental vigor, but of an amiable character, and popularly remembered as the good queen Anne. Though she was obliged twice to set a price upon the head of her brother, she seems to have cherished for him a strong affection. One of her last sayings was an expression of pity for his fate. Her reign, distinguished by successful wars, has also been called the Augustan period of English literature. The writings of Addison, Pope, Steele, Swift, and Defoe, adorned the age, and periodical sheets and newspapers, such as the successive numbers of the "Spectator," then first came into fashion.

ANNE ARUNDEL, a central county of Maryland, south of Baltimore, on the W. shore of Chesapeake bay. On the north it borders on the Patapsco river, the Patuxent forms a portion of its western boundary, and its eastern part is watered by the South and Severn rivers. The surface is undulating, and sometimes hilly, but the soil is fertile, and furnishes excellent crops. In 1850 there were produced in this county 4,528,340 pounds of tobacco, 925,448 bushels of Indian corn, 860,928 of wheat, 147,263 of oats, and 170,677 pounds of butter and cheese. Copper and iron occur, and some attention is paid to manufactures. It is the 8d county of Maryland with regard to population, and contains Annapolis, the capital of the state. Area, 750 square miles. Population, 82,898; 21,144 free, 11,249 slaves. Named from Lady Anne Arundel, afterward the wife of Cecilius Lord Baltimore.

ANNE OF AUSTRIA, queen of France, daughter of Philip III. king of Spain, born in 1602, died Jan. 20, 1666. She was married Dec. 25, 1615, to Louis XIII., and was the mother of Louis XIV. Hardly any queen of France was so much calumniated, or so undeservedly unhappy. Cardinal Richelieu, the all-powerful minister of the weak Louis XIII., dreading the influence of the wife, or, as others pretend, having been refused by her as a lover, succeeded in prejudicing the mind of the king till he allowed Anne to be continually persecuted, exiled, and, at times, left to suffer the greatest penury. Richelieu accused her of conspiring with the dukes of Lorraine, with England, with her own brother, the king of Spain, with all the enemies of France, and with the conspirators at the court against his own supremacy. At

the death of Louis appointed her re Louis XIV. The wise, was said to her name, and to some of the prince grandees,—a risk under the name of a peculiar and existing over the whole country was fine another peculiarly loved flowers past the view of nature.

ANNE BOLEY, the unhappy wife of Henry VIII. in 1500, die is also spelled Bull Sir Thomas Boleyn by Henry as a mother was a dau. At the age of 15 France as maid of England betrothed that princess, 8 y land a widow, Anne remained at the Fr gayety of which s and where she was wit. She was at Claudia, wife of F in 1524 she was fo duchess of Alençon her return to E honor to Queen C at the English court quired at the brilliant long precede the mind of Henry of his marriage. noted both for the of her conversation came a model of wrote to the king but, a queen being she had engaged to thumberland. Oat of Henry, had be widow of his bro Henry now petitioned for divorce. The queen V., and Clement the petition to offer arch of the time urged by the eloquent Wolsey. Anne from London to R only the prolonged postponement of a impetuous king die to obtain a decree waiting for the dis Catharine, private Nov. 14, 1532, having of Pembroke. Cranmer, who alre

of the English from the Catholic church, being raised to the archbishopric of Canterbury, pronounced the nullity of the first marriage and the validity of the second, and on June 1, 1533, the new queen was crowned at Westminster with a pomp before unexampled. Anne Boleyn was at the height of her happiness and power when 8 months later she gave birth to the princess Elizabeth, whose subsequent reign shed so much glory on the annals of England. Meantime Alexander Farnese, who had assumed with the papal tiara the name of Paul III., had fulminated against Henry a bull of excommunication, declaring him deprived of his crown, and commanding him to receive again his legitimate wife. A national synod, however, assembled by Cranmer, annulled the first and recognized the second marriage, and an act of parliament proclaimed the king and not the pope the head of the English church. Anne aimed to introduce into her court the easy manners of France, and did not observe the usual strictness of English etiquette in her social intercourse. She also cherished the society of the poets of her time, especially of Wyatt, and her own witty brother, Lord Rocheford; and encouraged the king to favor the cause of the reformation by forming a union with the Protestants of Germany. Queen Catharine, who had borne her cruel persecution with a gentle resignation and dignity, at length yielded to her griefs and died in 1536. Henry ordered funeral solemnities for her, and the household to be robed in mourning; but the joy of Anne Boleyn was not decently veiled, she little thinking that the sword of death was hovering, even then, over her own head. The fickle passion of the king had again changed its object, and the queen was removed from the throne to make way for one of her own maids of honor, Jane Seymour. From the freedom of her life, it was easy to find accusations where only a pretence was wanted, and the king reproached against her imputations which he had repelled when he decided to marry her. She was tried by a commission of 26 peers of the realm, and condemned to death, with 8 gentlemen and a musician, whom the commission adjudged to be sharers in her guilt. Henry VIII. had had the barbarity to include among the peers to judge the queen, Lord Percy of Northumberland, of whose early love for her he was aware. He fainted during the trial, and was carried from the tribunal, but the incident suggested to the queen, who had defended herself with remarkable skill, a new mode of defence. She affirmed, that having been bound by marriage-contract with Lord Percy, she could not legally have married the king, and therefore adultery by her would be no crime against him. This statement occasioned the convocation of an ecclesiastical court, by which the marriage of Anne was annulled, as that of Catharine had formerly been. The tyrant was not satisfied thus to leave the victim of his former love alive, but forced Lord Percy,

on peril of death, to declare that there had been no contract of binding force between himself and the queen, and then appointed the day for the execution of the latter, according to the decree of the former court. A tender and touching interest belongs to the last moments of Anne Boleyn. She wrote from the Tower a letter to the king, still preserved in the British museum, in which, with simple earnestness, she declared her innocence. She says: "Neither did I at any time so forget myself in my exaltation or received queenship, but that I always looked for such an alteration as I now find; for the ground of my preferring being on no surer foundation than your grace's fancy, the least alteration was fit and sufficient, I know, to draw that fancy to some other subject. . . . Try me, good king, but let me have a lawful trial; and let not my sworn enemies sit as my accusers and judges; yea, let me receive an open trial, for my truth shall fear no open shame." Her last prison hours were disturbed by fits of mental alienation. She uttered prayers to heaven with the greatest reverence, and immediately after would break out into loud and maniac laughter. In one moment she trembled at the sword, and in the next spoke with strange gayety of its power, and of the littleness of her neck. But near the last, she rose above her despair, resumed the queenly character, calmly addressed the assemblage, arranged her robe with her old instinct for gracefulness, and received the fatal stroke. Her remains were interred in the chapel of St. Peter, in the Tower of London, and the place of her execution on Tower hill is still pointed out to strangers. The question of her innocence or guilt has been discussed from the time of her death, and it can hardly be determined, beyond the possibility of cavil, whether she was an artful Messalina, or an artless English girl, educated in France. Religious parties caught up the controversy, as if the comparative merits of Protestantism and Catholicism were to be determined by its decision. Yet the dispute, however decided, has not the slightest bearing on the questions at issue between these two great divisions of the Christian world. Both sides, however, have joined in condemning the conduct of Henry VIII.; but that personage has lately found a zealous defender in Mr. Froude, an English writer who pleads his cause in his recent "History of England," London, 1856.

ANNE OF BRITTANY, queen of France, born in Nantes in 1476, died in the castle of Blois in 1514. She was the daughter and heiress of Francis II., duke of Brittany. That duchy was her dowry in her marriage with Charles VIII., son of Louis XI. of France, and thus became henceforth incorporated with France. She was previously affianced to Maximilian of Austria, father of Charles V., but her guardian, Louis XI., skilfully dissolved the previous engagement, and thus assured the aggrandisement of his kingdom and family. After the death of

Charles VIII., she married his successor, Louis XII., who had loved her when a girl. Though not handsome, and so lame that she could not walk without limping, she exercised a great influence over her royal husbands, and all around her. She was an example of virtue and industry to the court, was eloquent, extensively informed, judicious, and with decided ability administered the kingdom during the campaigns of her husbands in Italy. She left one of the purest names in all the royal records of France. With her originated the establishment of maids of honor about the person of the queen, a custom imitated by other courts.

ANNE OF CLEVES, daughter of John III., was the fourth wife of Henry VIII. of England. To please the Protestant party, and to make friends among the Protestant German princes, Henry chose Anne and wedded her, Jan. 6, 1540; but finding her not to his taste, divorced her in July of the same year, and settled upon her an annuity of £3,000.

ANNE OF RUSSIA, daughter of Jaroslaw Vladimirovitch, grand-duke of Kiev, became in 1050 the wife of Henry I., king of France. She was the mother of King Philip I., from whom proceeded the long lineage of the Bourbons. She brought to France a copy of the gospel written in the Cyrillic, or original Slavic or church characters, and a few pages of it are preserved as relics in the cathedral of Rheims, with the sacred ampulla containing the oil used to anoint the French kings at their coronation.

ANNEALING (Sax. *analan*, to heat), is a process of softening and toughening certain metals and glass by heating them, and then cooling them very slowly. In working some of the metals under the hammer, or in rolling them into plates, or in drawing them out into wire, they soon become hard and brittle, so that the process cannot be continued without restoring them to their former condition. This is done by the annealing process—merely heating and very slowly cooling. It has sometimes to be often repeated in drawing out a single plate of brass or of aluminum. The internal arrangement of the particles of many metals appears to be changed by several causes. One has been already mentioned. The constant jarring motion to which the wheels of railway cars and their axles are subjected changes in time the soft, fibrous texture of the iron into a crystalline structure approaching that of cast-iron. They become brittle, and can be restored only by again working them over and annealing. Intense cold produces a similar effect, when the change of temperature is very sudden. The tempering of steel is an artificial hardening of this same nature. Cast-iron may be chilled and become as hard as steel, but brittle. It may be annealed (with a slight change in the composition at the same time) and form malleable castings—cast-iron nails, even, that will clench. The simple statement of these effects and their classification comprises nearly all that can be positively affirmed concerning the phenomena. But the

subject is more particularly to the changes glass. When this is articles, which are air, the glass is too inferior cools first at which shelters the these continue long are prevented from cooling, and uniting inhomogeneous mass. constantly tending to the glass is placed i lowed to cool very appear to interwea fibrous texture, occu denly cooled, and that it becomes to trene effect of sudd shown in the philos Rupert's Drops" an former, which were Charles II., in 1661, of glass, with a curv melted glass into wa burst to pieces, bu When taken out of smart blow without is spread equally th But if a little piece stem they will fly in explosion. Dr. Ure by referring it to the once formed in the tions in different whole mass. The the very large shee shop windows—onc time to fall to pieces imperfect annealing made of unanneale and about $\frac{1}{4}$ of an is paid to their shape hard blow with a outside, or a small b one without breakin ment of sand, or sma ped in, the glass will feet is not always i times delayed until o the explosion may su ing, the heating and done, these peculiar are said also to disapp many years in a war

ANNEBAUT, Orléans marshal of France, b. 15th century, died . He was descended fro ily, distinguished for early in life entered the battle of Pavia France was defeated Feb. 24, 1525, he was mained by his sover lessely lost, and shar

evinced his appreciation of this conduct by intrusting him with many important and delicate duties. He conducted campaigns in Italy, Flanders, and Champagne with success, was governor of Piedmont, and undertook several important civil missions, for which he showed no less capacity than for military operations. He was finally appointed admiral of France, and when Henry VIII. captured Boulogne, organized a most powerful fleet for the purpose of making a descent upon the English coast. The expedition sailed from Brest, but little beyond blockading Portsmouth had been accomplished, when peace was concluded. On his death-bed, Francis strongly urged his successor, Henry II., to avail himself of the wisdom and experience of Admiral Annebaut. Henry, however, had his own favorites to gratify, and soon after his accession to the throne, deprived this old and faithful servant of his office of admiral, which event he did not long survive.

ANNECY, an ancient town of Savoy, pleasantly situated near the lake of the same name, 22 miles S. of Geneva, with a thriving and industrious population of about 6,000 inhabitants, factories of various kinds, cotton-spinning mills, glass and iron works. It is the seat of a bishopric. St. Francis de Sales was born there, and his relics are preserved in St. Mary's church. Rousseau made the acquaintance of Madame de Warens in Annecy.

ANNELIDA (Lat. *anellus*, a small ring), red-blooded worms, such as the common worm, the lug-worm, and the leech. They are remarkable in being the only section of invertebrate animals which have red blood. They form an extensive class, subdivided into 4 orders by Milne Edwards. The body has an elongated form, with distinct soft semi-cartilaginous annulations, connected together by longitudinal oblique muscles, enabling the animals to twist themselves in various directions. The whole is covered with a moist skin, indicating by slight segments the soft annuli beneath. The first segment is furnished with a mouth, and, in some species, with eyes and tentacles; the last segment is furnished, in some cases, with bristle-like appendages, and in others, as in the leech, it is dilated into a sucker. Each segment is usually furnished with minute setæ, or spines, which are useful in locomotion. In some species vascular tufts are observed, which serve as respiratory organs. There is a system of veins and arteries. The nervous system consists of ganglia, united by means of a double nervous cord. Each individual is bisexual. The common worms, being defenceless, seek safety by retiring into holes which they bore in soft earth, mud, or sand. The *sabella* and *terebella* of the sea-shore agglutinate around them particles of sand and of broken shells to form a case in which they dwell. The *serpula* exudes a calcareous secretion to form a long twisted tube, in which the animal resides, and from which it protrudes its head and respiratory tufts. The 4 orders of this class are: 1, the *dorsibranchiata*, or *errantæ*,

including the sea-centipedes and sea-mice; 2, the *tubicola*, which include those that live in tubes, as the *serpula*; 3, the *terricola*, including the common earth-worm; and 4, the *suctoræ*, having suckorial disks, as the leech.

ANNESLEY, ARTHUR, earl of Anglesea, born at Dublin, 1614, was eldest son of Sir Francis Annesley, who was created Baron Mountmorris, in Ireland, in 1639, and succeeded to the Viscounty of Valentia, in 1642. Arthur Annesley was among the loyal members who met in the parliament summoned by Charles I., at Oxford, in 1643. The royal cause having become almost hopeless, he made terms with the republicans, and was one of the five commissioners appointed by both houses to settle the affairs of Ireland, in 1645. Finally, he took an active part in the restoration of Charles II., and, in 1661, was created Baron Annesley and Earl of Anglesea, in the peerage of England. He was made treasurer of the navy, and lord privy seal. He continued to act in the latter capacity until 1682, when he was dismissed, for the undue zeal with which he promoted the exclusion of the duke of York from the throne. He died in 1686. He published several works on polemics, politics, constitutional law, and parliamentary privileges. The adventures of James Annesley, Lord Altham, his grandchild (born in 1715, kidnapped by his uncle, and sent out of the country to America, where he was thirteen years in slavery, finally, in 1743, establishing his legal rights to the honors and estates of the earls of Anglesea), are believed to have suggested to Sir Walter Scott, who was familiar with the story, that portion of "Guy Mannering" which details the early life of Henry Bertram, the stolen heir of Ellangowan. There is, in the Abbotsford library, a report of the trial, which lasted 18 days; and Smollett gave the leading facts of the case in his novel of "Peregrine Pickle." The Irish peerage of Annesley is held by a descendant of Arthur Annesley.

ANNETT, PETER, a native of Liverpool, England, distinguished for his opposition to the doctrines of Christianity. He became noted by a work entitled "The History of the Man after God's own heart," occasioned by a comparison made by Dr. Chandler between Geo. II., then just deceased, and King David. In 1769 he published a paper entitled the "Free Inquirer," for which he was prosecuted, and sentenced to the pillory and imprisonment. He died in 1778.

ANNEVOYE, a commune and village of Belgium, province of Namur, on the left bank of the Meuse. It is remarkable for its furnaces, which produce large quantities of iron.

ANNI, or ANI, a ruined city of Turkish Armenia, about 20 miles E. S. E. of Kara. Its ancient name appears to have been *ANNUA*, but its history is only imperfectly known. In the 5th or 6th century it became the capital of the Pakradian (Bagratian) kings of Armenia, and in the 11th century it was sacked by the Tartars, soon after which event it ceased to be

an inhabited place, and has never since been re-occupied. There are numerous ruins of churches, chapels, and private buildings, while the massive walls of about 6 miles circuit are in a good state of preservation.

ANNIUS OF VITERBO, an Italian monk, born at Viterbo about 1432, died Nov. 13, 1502. His real name was Giovanni Nanni, which, according to the custom of the time, he Latinized into Johannes Annius. He was a Dominican of great learning, and enjoyed the especial favor of pope Alexander VI. and his family; though his death is said to have been caused by poison administered by command of Cæsar Borgia, son of Alexander, who wished to be rid of one whose plainness of speech sometimes offended his pride, or perhaps touched his guilty conscience. Annius is chiefly known for having published what purported to be a collection of certain works of ancient authors previously supposed to be lost. Among these authors were Berosus, Marcus Cato, Manetho, and others. The title of this work was *Antiquitatum Variarum Volumina* XVIII. (fol. Rome, 1498), with commentaries by the editor. Much attention was excited by this work, which has, however, long since been condemned as spurious. The character of Annius has nevertheless been defended by many from the charge of intentional forgery, and the Marquis Fortia d'Urban published a work on the subject at Paris, in 1818, in which he exonerates Annius from this crime. His opinion is that the monk was imposed upon by one of the numerous vendors of manuscripts of his time. Annius was also noted among his contemporaries for two works which he wrote concerning the Turks, and their relations with the Christians.

ANNIVERSARY, the return of any stated day with the revolution of the year, called in old English and in German a year-day. It is applied particularly to a day on which some remarkable or interesting event is annually commemorated. The periodical celebration of the striking facts of the past is doubtless as old as the division of time into periods. The first cycle of time, after the day, was the week; and the Sabbath, which commemorates the completion of the works of creation, has been, from the beginning of the world, devoted to prayer and domestic joys. The Jews and some Gentile nations kept religiously also the first day of the month; and the first day of the month Tisri, which was also the first of the civil year, was celebrated with the imposing feast of trumpets, so called because the dawn of that day was proclaimed by sound of trumpets. The interval of a year has been thought in general to give the most due and convenient frequency to commemorative exercises, and therefore most religious festivals and political celebrations have always been anniversaries. The observance of anniversaries springs from an innate sentiment in man, and is but the prolonged effect of affection and gratitude. Among the Jews the feast of the Passover celebrated the exodus from

Egypt and the passage of the Red sea; that of Pentecost commemorated the promulgation of the law on mount Sinai; that of the Tabernacles recalled to the memory of the people the 40 years which their fathers had passed under tents in the wilds of Arabia. Thus every past struggle and triumph of the nation was affectionately remembered. The Egyptians in the earliest historical ages made a festival in every harvest season in honor of Isis, who had first taught them the cultivation of wheat; and by other festivals, which they celebrated with funereal pomp and various astronomical symbols, they recalled the events of the life of Osiris, and particularly his death. The anniversaries of Greece presented an abridgment of her history, and were celebrated with the greatest enthusiasm and magnificence. Her games and mysteries were all anniversaries, not less than the splendid ceremonials commemorative of the union of the people of Attica under Theseus, and of the battles of Marathon, Salamis, and Plataea. They were attended with dances and songs, with representations of the masterpieces of Æschylus, Sophocles, and Euripides, and with chariot races, the victors in which had their praises sung by Simonides and Pindar. It was said by Plutarch that the Athenians in their zeal for public festivals and spectacles spent more money in anniversary rejoicings than in their wars with Persia. The gods and many of the festivals of Greece were inherited by Rome, but the principal Roman anniversary was that of the foundation of the city, *ab urbe condita*. This was the beginning of their era, their new-year's day, as the birth of Christ is the beginning of the Christian era, and the flight of Mohammed of the Mohammedan. That the anniversaries of domestic events were observed by the Romans is seen from the festive rites with which the hero of the Æneid honors the returning day of the death of his father Anchises. The calendar of the Roman Catholic church is but a series of anniversaries. Thus Christmas, Epiphany, Easter, the Ascension, Pentecost, and Trinity, are annually commemorative of the great facts in the creed of the church, and were celebrated, at least to some extent, in the crypts and catacombs which underlie Rome, before either basilic or church had distinguished the place of the martyrdom of St. Peter. During the 2d century it became common for Christian congregations to observe with religious services the anniversaries of the death of their martyrs. Private families did the same in commemoration of their departed. Hence the annual festivals of martyrs and saints observed in the church, and the numerous anniversary days in which an office is performed for the souls of deceased members. The reformers of the 16th century abolished a large number of these festivals, and by some branches of Protestantism not more than one or two of them are regarded; yet the boast of the last great poet of the English church is, that that church marches through the ritual year as through a zodiac, so

thickly set is it with signs. In recent times the anniversaries of political events are more frequently observed, than of religious. In England the birthday of the reigning monarch is generally celebrated with rejoicings, and the anniversary of the declaration of independence by our fathers, July 4, 1776, is universally observed as a holiday in this country. Literary and scientific societies often celebrate the yearly return of the day of their original institution; and birthdays, especially those of heads of families, are in all the countries of Europe commemorated with social parties. The German people are especially distinguished for their cordiality and for making presents on these occasions. Every nation, even the most barbarous, has instituted annual solemnities and festivities, though perchance they may be in honor only of a ridiculous superstition or a great crime. The periodical recurrence of the day on which some momentous event took place, recalls the circumstances of the event itself to mind, and awakens the feelings proper to the scene. It is said that Voltaire always had a fever on the anniversary of the eve of St. Bartholomew.

ANNO, SAINT, archbishop of Cologne, in the 11th century, died 1075. He belonged to a noble family, and was destined at first to the profession of arms. He afterward determined to enter the church, and his virtues and talents becoming known at court, was appointed chancellor under the Emperor Henry III. He was tutor of the young Henry IV., but was too strict a disciplinarian to gain the affections of his pupil. After the death of Henry III., the regency came into his hands for a short time, but he soon laid it down in disgust. The hymn of St. Anno, composed in 1185, is one of the most beautiful poetical productions of the middle ages. It is a kind of panegyric on the saint, commencing with the popular traditions of Germany, and touching on the history of the archiepiscopal seat at Cologne, and 83 bishops before the poet, among whom were 7 saints. This hymn is the only poetical monument of the German national literature in the 11th century. It was first printed from a forgotten manuscript by Martin Opitz, of Dantzic, in 1689.

ANNOBON, a small island on the west coast of Africa, lat. 1° 24' S. long. 5° 35' E. It is a stopping place for vessels, and is remarkable for the luxuriance of its vegetation and for the fact that it rises from an immense depth to the height of 8,000 feet above the sea level.

ANNONAY, a town of France, department of Ardèche, noted as the birthplace of the Montgolfiers, inventors of the air balloon, and for its paper made at mills erected by these famous brothers. It has several very celebrated manufactories of gloves, of which 850,000 dozen are prepared annually. It is the point of junction of the Oance and the Désaume rivers, which are here crossed by a fine suspension bridge.

ANNOTTO, also called ANMATTO and ARMATTO, a red coloring matter extracted from the

outer part of the seeds of an evergreen plant called the *bixa orellana*. It is imported from Brazil. Dissolved in an alkali, as a crude pearl-ash, its color changes to orange. It is used to color milk, butter, and cheese. Dyers, painters, and soap-makers also make use of it. Though employed only for disguising other substances, it is itself probably more adulterated than almost any other article of commerce. It has been purchased containing over 60 per cent. of chalk, and is often found contaminated with red lead, so that cheese colored with it has been made poisonous. Other substances usually mixed with it are turmeric, flour of rye, barley, and wheat, sulphate of lime, salt, alkali, Venetian red, and copper. As no possible good results from its use in food, even when pure, there is no excuse for continuing the practice of mixing it in articles of such general consumption as butter, cheese, and milk. It is used to such an extent in Great Britain that the value of its importations in 1854 was £25,418. In 1855, however, these had fallen off to £14,765, which was probably due in a great measure to the attention called to its misuse.

ANNUAL REGISTER, THE. After Edmund Burke had published his "Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful" he wrote for Dodale, his publisher, a work in 7 volumes, entitled, "An Account of the European Settlements in America." His inquiries thus directed into history, politics, and literature, he suggested the publication of a work which was to chronicle the progress of these subjects, year by year. The proposition was accepted, and the execution of the historical portion was intrusted to Burke. In June, 1759, appeared "The Annual Register; or, a View of the History, Politics, and Literature of the year 1757." The title-page further stated the publishers to be, "R. & J. Dodale, in Pall Mall, London." The work was so successful that its continuation was determined upon, and, for many years, Burke wrote the historical record. Of the early volumes several passed into 5 and even 6 editions. After many years, Burke ceased his labors on this work, and it was successively performed by Mr. English, and Dr. Walker (afterward Bishop) King, editor of Burke's works. The sum annually paid to Mr. Burke was only £100. The "Annual Register" continues to be published (by Messrs. Rivington, of London), and has passed its hundredth volume. It now consists of a historical narrative of each year (which, latterly, has been too much of a compilation), a chronicle of events, abstracts of legal cases, state papers, public documents, and a few pages of selected poetry. The "Annual Register" is a valuable repository of facts, and has considerable value as a work of reference. Latterly, however, it has been much surpassed, in most that made it valuable for reference, by the "Gentleman's Magazine." In the finish of success, after Sir Walter Scott had found literature to be a real El Dorado, he urged Ballantyne,

burgh Annual Register." Though the historical portion was successively written by Kirkpatrick Sharpe, Robert Southey, and Sir Walter himself (who wrote the history of the years 1814 and 1815, which he afterward transferred, with little alteration, into his "Life of Napoleon Bonaparte"), this rival to the old Annual Register never paid expenses, and was indeed a heavy loss for several years.

ANNUITIES, are periodical payments of fixed sums of money, made in consideration of moneys paid or of services rendered. When the annuity does not depend upon any contingent event, but is to be made certainly for any given number of years, or forever, the annuity is called certain, and the calculation of the amount, to be secured by the payment of a given sum, is merely arithmetical. When the payment of an annuity depends upon the continuance or cessation of the life of one or more persons it is called a life annuity. The value of such annuities is calculated with difficulty, and even good mathematicians are liable to error in the fundamental part of the calculation, the doctrine of chances. The requisite data for calculating the probable duration of any one man's life are obtained from statistics of population, but the probabilities of one surviving another, two surviving a third, and other contingencies on which annuities are sometimes made to depend, are only to be discovered by calculations founded on the probabilities of each life. The practical question in these problems usually is, what is the equitable price to be paid for an annuity of a given description, so that the annuity office may out of a large number of such annuities neither make undue profits nor suffer loss. In the United States annuities are granted chiefly by incorporated companies; and annuities granted by the government for services rendered, made incapable of transfer or sale, are called pensions. In Europe annuities, transferable, and conditioned in various ways, are sometimes sold by the government as modes of raising loans; and of this nature are the peculiar public stocks called tontines (see *TONTINES*). The same companies that grant annuities usually grant also assurance on lives; that is, make contracts, in virtue of annual premiums received during the continuance of a life, to pay a certain sum at the decease of the person thus assured. The same mathematical calculations are requisite for assurances as for annuities. The difficulties of the case arise partly from the paucity of accurate statistics of mortality, partly from the intricacy of the calculation required. While deceptive assurance and annuity companies, whether fraudulent or ignorant, have brought loss and ruin upon those who trusted to them, well conducted establishments of this kind are among the most useful and beneficent of modern institutions. For valuable and recent investigations, see the papers of President McCoy, and of Mr. Elliot in the proceedings of the American Association for

books there referred to.

ANNUNCIATION, the announcement to Mary by the angel (Luke i. 30-38), that she should conceive and bear the child Jesus. In commemoration of this event, the church instituted the feast of the Annunciation, to be observed on the 25th of March. In old style this day commenced the year. Writers differ as to the time when this feast was instituted. Some throw it as far back as the 4th century, since there is mention of it in a sermon ascribed to Athanasius. Others think its origin is to be assigned to the 7th century, which is the most probable opinion, as the sermon of Athanasius is perhaps spurious. In the 8th century we find it ordered in a constitution of Nicephorus, that if the feast of Annunciation falls on Thursday or Friday, one shall not scruple to eat fish or drink wine. It is also certain that this feast was celebrated before the Trullan council (692), for that council forbids the celebration of all festivals during Lent, excepting the Lord's day, and the feast of the Annunciation.—Several religious and military orders have been instituted in honor of the Annunciation. The first was the *Servites*, established (1332) during a religious excitement among the Florentines. A sisterhood of the same name has been instituted in later times. The second is a military order established by Amadeus VIII., who was an antipope (1484). The order wore a golden chain of 15 links with a pendant, on which were the letters F. E. R. T. (*Fortitudo Ejus Rhodum Tenuit*), commemorating the brave defence of Rhodes against the Turks, by Amadeus V. Another order was instituted in 1500 by Jane of Valois, in honor of the Ten Virtues. Still another order was established (1604), called the Celestials, more rigorous in its requirements of the recluse than the former. They have still some convents in France, and are met with in Genoa and Rome. Annunciation day is also called Lady's day.

ANOA, a species of ruminating animal so little known that zoologists are undecided whether to class it as an antelope or a buffalo. The horns are erect, annulated distinctly for rather more than one half of their length, and terminating in smooth and exceedingly sharp spikes. In form these correspond with those of the antelopes, and in position with those of the buffaloes, between which two classes of animals the anoa is generally supposed to form a connecting link.

ANODYNE (Gr. *an*, privative, and *odyn*, pain). The term is applied to a class of medicines which relieve from pain; and, as numerous diseases cause pain or acute suffering, and different kinds of medicine give relief, in different cases, the term anodyne may be applied to any medicine which causes pain to cease and suffering to be relieved. The word is chiefly applied, however, to the different preparations of opium, belladonna, hyocyamus, and lettuce, which are the substances most used as anodynes.

ANOINTING, an ancient and still prevalent custom throughout the East of pouring aromatic oils on persons as a token of honor. It owes its origin to considerations of comfort and health, being regarded as a preventive of diseases, and as contributing to personal elegance. Hence it was esteemed also a protection, and became a sign of consecration. It was employed in consecrating priests, prophets, kings, and the places and instruments appointed for worship. In the Old Testament the anointed of the Lord is a person upon whom God has conferred a particular dignity, and whom he has appointed to a special ministry. Jacob, in going to Mesopotamia, anointed with oil the stone upon which he rested his head and from which he saw the vision of the ladder. Aaron and his sons were anointed to the priesthood, and Moses anointed the sacred ornaments and vessels of the tabernacle. Saul and David were anointed by Samuel, and Solomon received the unction from the high-priest Zadok and the prophet Nathan. The anointing oil was often a very costly preparation. Olive oil, spikenard, and myrrh, were the more common materials. It was a regular article of trade, and sold in alabaster boxes, which were well fitted to preserve the odor. A very precious oil, the holy oil, was used in the service of the sanctuary, and could not be put to any ordinary purposes. The Roman Catholic church has retained anointing as a symbol in its ceremonies of baptism, confirmation, and ordination. In consecrating a church, the bishop anoints the walls of the edifice and the altars which are to serve in the celebration of the mass. At the approach of death, too, religion raises the courage of the believer by the sacrament of extreme unction. Anointing with perfumed oil was in common use among the Greeks and Romans as a mark of hospitality to guests, and modern travellers in the East still find it a custom for visitors to be sprinkled with rose water, or to have their head, face, and beard anointed with olive oil.

ANOLIS (*anolis*), a reptile of the saurian family, peculiar to America, belonging to that section of the iguanas which Cuvier distinguishes as having teeth on the palate of the mouth as well as on the interior jawbones. Its body is long and tapering; the same shape is characteristic of the legs and tail. The fore-legs are longest, having 5 toes furnished with sharp, hooked claws, with a sort of pad appended to the under-side of the last joint, which increases the power of their hold on any substance over which they may chance to be walking. They have a large extent of loose skin extending from the chin to the belly, which, when not distended, forms a longitudinal fold under the whole under-surface of the animal. The anolis has a singular serrated, or saw-edged crest along the spine and upper side of the tail, and the whole animal is covered with small round scales, which give it a granulated appearance resembling the finest shagreen. The anolis is an entirely American genus, and

seems in many respects to supply in the new world the place occupied by the chameleon in the old. The colors of its skin change with the same or even greater rapidity, especially on the loose skin of the throat, which is constantly distended when these animals are actuated by strong passions either of fear, anger, or love, and in this state they assume an endless succession of ever-varying hues. They frequent woods, coppices, and rocky places indifferently, climb and leap so swiftly and rapidly that their movements, like those of a bird, can hardly be traced; and, when overheated or fatigued by their exertions, will stop, open their mouths, and pant like a tired dog. They are gentle, inoffensive creatures, feeding on insects and flies, and are easily alarmed. There are six species, two of which belong to the United States, and the others to the Antilles and to South America. 1. *A. velifer* is of a beautiful ashy blue color, and is the largest of the family. Its body is about a foot in length, and the tail a foot and a half. The crest extends along the top of the tail for half its length from the origin, and is supported by from 12 to 15 rays. It is a native of the West Indies. 2. *A. bimaculata* is little more than half the size of the former species, is of a greenish-blue color, clear on the head and upper parts, but variegated with brown on the body, tail, and extremities. It is found from Pennsylvania to the shores of the gulf of Mexico and in the Antilles. 3. *A. equestris*. This species has scarcely any crest, and is nearly the size of the species first described. 4. *A. cepedii*, is smaller than any of those previously named, not above half the size of that last named, and very pretty. It is green in color and has a short muzzle spotted with brown, and, except in the absence of the crest or the tail, very similar to the *anolis bimaculatus*; it belongs to the Antilles. 5. *A. lineatus* is of a pure, bright green color, rather larger than the last species, and is marked along each flank with two parallel lines of oblong black spots; it is a native of different parts of South America. 6. *A. bullaris* is a native of South Carolina, and is known under the name of the green lizard. It is a beautiful greenish gold-colored reptile, particularly distinguished by a black band on the temples, and the elongated and flattened form of its muzzle. **ANOMALISTIC YEAR**, the period of 365 d. 6 h. 18 m. 45.6 s. occupied by the earth in going from perihelion to perihelion.

ANOMALY, a deviation from law, or an apparent deviation. In grammar, an irregularity of language; in astronomy, the difference of a planet's position from that which it would have if moving uniformly in a circle, instead of an ellipse.

ANOMCEANS (Gr. *anomos*, dissimilar), a term applied to the pure or high Arians, in distinction from the semi-Arians, because the pure Arians believed that the nature of Christ was different from that of the Father, while the semi-Arians considered it similar.

ANONYMOUS WORKS are those which do not contain the name of the author on the title-page. M. Barbier says, in his *Dictionnaire des ouvrages anonymes* (Paris, 1822): "It would be easy for me to prove that in every library composed of useful books, one-third have no indication of authors, translators, or editors." This proportion, even if true in his time, certainly does not hold good at present; but the number of anonymous works is still very large. In many cases, a work or a series of works which has been anonymous, ceases to be so from the author's declaring his name, or from its being in some way discovered as in the case of the *Waverley Novels*; for anonymous publication is often resorted to as a means of procuring the opinion of the public upon a work, unbiased by any personal considerations. The proper classification of these works has always been a puzzle to bibliographers and librarians. Some catalogue them by the first word; others by the most important word; but the question as to which is the most important word is often so perplexing, that the former appears the safer plan; yet the temptation to abandon this also is occasionally very great. History tells us also, that certain inconveniences have been caused to authors by their using a *nom de plume* instead of their own. Pope Paul II., for example, seized and tortured such of these as he could catch, under pretext that the suppression of their names was equivalent to conspiring against the state. Many, however, escaped from his hands, and took refuge in Lombardy, France, Germany, and even Poland. Nor was this the only legislation on the subject. The council of Trent decreed that no book should be published concerning religion or sacred things, without the name of the author. This was sanctioned in France by a law of Henry II. (1547). In 1572 Charles IX. signed an ordinance, forbidding all disguising of the name or the place of printing. This, however, was held to refer to the name of the printer. An edict of Louis XIII. (1626) expressly forbids, in the strongest and clearest terms, the printing of "any book, letter, harangue, or other writing," without the name of the author; but the parliament that registered this law, restricted it to those concerning religion and affairs of state. Pope Clement VIII. thus modified the decree of the council of Trent in the instructions for his index of prohibited books. "One ought not to condemn all those books which do not bear the name of the author; because we know that often, learned and holy men have published very good books without declaring their names, so that the church might profit therefrom, and they avoid vain-glory. Therefore only those are placed in the list of the condemned which contain doctrine manifestly bad, or of suspected faith, or hurtful to morals. Let no book then henceforth be published without the name, surname, and country of the author. If, however, the author be unknown, or the bishop or the inquisitor judge that the name

of the author may, from some just cause, be concealed, the name, at least, of the examiner must be written." Anonymous books will, of course, continue to be written as long as the art of writing lasts, but literary men, and especially librarians, should constantly endeavor to discover the names of their authors, and register them in some public manner, for they often come in time to have a certain historical value.

ANQUETIL, LOUIS PIERRE, brother and biographer of the subject of the next article, was born in Paris in 1728, and died there in 1808. He was for many years connected with various theological and academical institutions in the neighborhood of Paris. For some time he was at the head of the seminary of Rheims, and is the reputed author of a history of that ancient town up to the middle of the 17th century, which was published in 1757. He acquired some literary fame by a series of poetical essays, and published many historical works, an English history, and a history of France. He was by no means a man of great depth of learning, but of extraordinary industry, and on his deathbed, when he was 84 years old, he said to his friends, in allusion to his vast literary projects, "You see a man before you who dies while he is full of life."

ANQUETIL-DUPERRON, ABRAHAM HYACINTHE, a French oriental scholar born in Paris Dec 7, 1781, and died there Jan. 17, 1805. He was educated for the pulpit, but he had conceived an extraordinary predilection for oriental literature, to which he devoted himself exclusively, and his enthusiasm for this branch of study was so ardent, that in 1754 he enrolled himself as a common soldier, in the expedition to the French colonies in the East Indies. Having landed at Pondicherry, great obstacles opposed themselves to his desire to explore the country, and to familiarize himself with the language and customs of the natives. The war between the English and French, his poverty, the oppressive nature of the climate, the dangers of travel, in the shape of wild beasts, treacherous guides, and painful diseases,—all these difficulties he encountered with patience and with courage. He visited Chandernagore, Surat, the coast of Coromandel, and was just about proceeding to Benares for the purpose of studying there the antiquities, religion, and literature of Hindostan, when the capture of Pondicherry forced him to return to France, where he arrived in 1762, without money, but with an intellectual treasure of 180 valuable Hindoo manuscripts, and many other curiosities. In acknowledgment of his services, he was appointed, through the interposition of Abbé Barthélemy, interpreter of oriental languages at the Royal Library. In 1763, he was admitted to the academy of inscriptions and belles-lettres, and in 1771, he published, under the title of *Zend-Avesta*, a collection of the sacred writings of the Persians, with an account of his travels and the life of Zoroaster. In 1778 appeared his *Législation Orientale*, which is in opposition to

the ideas of Montesquieu. He left various other writings, chiefly connected with oriental life and literature. His *Zend-Avesta* is not considered, at this day, the best authority upon oriental literature, as he is supposed to have written too much under the influence of the ignorant Persian *destours*, or priests.

ANSALONI, GIORDANO, a Sicilian missionary of the order of St. Dominic, born about the commencement of the 17th century, died by torture, at Nangasaki, Japan, Nov. 18, 1684. He was possessed with an intense desire to suffer martyrdom for the sake of his religion, and having heard that in the Japanese islands Christians were persecuted with the utmost barbarity, determined to go thither, and win his martyr's crown. Having obtained permission to accompany a Spanish missionary expedition to the Philippine islands, he was employed to look after the spiritual wants of the Chinese and Japanese patients in the hospital at Manila. He took advantage of this employment to learn the Japanese language, and soon spoke it like a native. Thus prepared, he entered the country in 1682, and so thoroughly had he studied the language, dress, and habits of the people, that for two years he was able to pass himself off for a Japanese priest. He was finally discovered and arrested at Nangasaki, where he was suspended by the feet, head downwards, in which condition he lingered for 7 days. He was reputed to be a man of unusual intelligence, could speak 7 languages, and had written the lives of the saints of his order, and a work on Chinese idol worship.

ANSARIANS, or ANSARA, a word derived from the Arabic *ansar*, a helper, defender. The earliest followers of Mohammed in Medina were so called, and several learned doctors of Medina afterward adopted that title.—A people of Syria, also called ENSARIANS, occupying the territory which extends from Antakia to the Nahr-el-Kabir, or Great river. They are divided into several tribes, among whom are the adorers of the sun, and the worshippers of the dog. Col. Chesney's "Expedition to Euphrates and Tigris" gives an account of them.

ANSOARIUS, or ANSGAR, in French ANSCAIRE, called the "Apostle of the North," was born in Picardy in the year 801, died at Bremen in 865. Educated in the old Benedictine monastery of Corbie, he was early transferred to a new one recently founded at Korvei on the Weser, where he distinguished himself as a teacher. When Harold of Denmark, who had been baptized in Mentz, returned to his country, desiring to introduce the Gospel there, he took with him, as missionaries, Anscarius, and his colleague Audibert. Success at first attended their efforts, but Harold having, by intemperate zeal, excited the discontent of his subjects, they, as well as the king, were expelled from the country. Not discouraged by this event, Anscarius, in 880, penetrated into Sweden, where he obtained from the king, Blarn, permission to preach. He made many

converts, whom he baptized, and, after building a church, returned to his monastery in 881. In the following year, Pope Gregory IV. made Hamburg an archiepiscopal see, to which he appointed Anscarius, investing him at the same time with the powers of an apostolical legate. The new dignitary set to work with redoubled energy, founding a monastery, establishing schools, and frequently visiting the most remote parts of his diocese. Unhappily, in 845, the Danes and Northmen sacked Hamburg, and burned the monastery, the archbishop hardly escaping with his life. After finding a temporary asylum at a pious matron's, he removed to Bremen, and a few years later, on the death of the bishop of that city, the bishopric was united with the archbishopric of Hamburg, and intrusted to Anscarius. At the same time Pope Nicholas I. appointed him his legate to preach the gospel among the Swedes, Danes, and Slavonians. With this mission he paid another visit to Denmark and Sweden. In the former country, under the protection of King Eric I., he succeeded in reestablishing the Christian religion. In the latter he reformed many disorders which had grown up among the new Christians. Anscarius was not, indeed, the first who attempted to propagate the gospel in northern Europe, but he was the first who firmly planted Christianity among the heathen Danes and Swedes, and he fully deserves the surname which has been bestowed on him.

ANSELM OF CANTERBURY, saint and doctor of the Latin church, entitled, as much from the method which he introduced into theological reasoning, as from the character of his arguments, to be called the inventor of the scholastic theology. He was born in the year 1033 at Aosta, in Piedmont. Though blessed with the counsels of a pious mother in his childhood, his youth was dissolute, he quarrelled with his father, became a "wandering student," and pursued an uncertain course, until, at the age of 27, he entered the monastery of Bec, in Normandy. His large scholarship, his amenity of manners, and his extraordinary insight into the characters of his associates, speedily gave fame to the monastery, which was increased by the theological works which at intervals came from his pen. At the age of 45 he became abbot of this extensive and wealthy foundation of the Benedictines. Occasional journeys which the pecuniary affairs of his community compelled him to make to England, had so fixed his popularity in the church of that realm, that when the great Lanfranc died in 1069, all voices designated Anselm, his friend and pupil, as his fittest successor in the primacy of England. His own reluctance, and the violence and stratagem of the rapacious William Rufus, who feared his honesty, delayed for a time the choice. But at the end of 4 years, these difficulties were overcome, and on Dec. 4, 1093, Anselm was consecrated archbishop of Canterbury. His episcopal life, which lasted 16 years, was active and varied. He busied himself in

was alternately in league and in strife with the kings of England, maintained the cause of the legitimate Pope Urban against Clement the antipope; met, in the course of his two journeys to Rome, with not a few mishaps and adventures; was deprived for a time of his bishopric, and forced to live in retirement; disputed so skilfully against the Greeks at the council of Bari, that all the bishops pronounced a curse against any one who should henceforth deny the double procession of the Holy Ghost; reconciled enemies, and wrote ingenious books to suppress heresy; and at last, in the year 1109, at the ripe age of 76, worn out by incessant labors, found his resting-place by the side of his great master in the Canterbury cathedral. His festival is kept by the Catholic church on April 21, the date of his death.—Anselm's ascetic austerities, though so severe that they called forth a protest from his friend, the pious queen Matilda, were equalled by the self-denial of many in his order; but as a religious philosopher, he had no superior in his own age, and few superiors in any age. His intellect was acute and inquiring, his imagination was quick, and all speculative and mystical themes had for him an irresistible charm. He grappled fearlessly with the hardest and most profound questions. In his *Monologium*, he exhibits the abstract proofs of the existence of God, and explains the divine nature; in his *Proslogium*, he makes the idea of perfection a necessary postulate of God's being and attributes. His greatest works, and those which have won for him the surname of "the Augustine of the Middle Age," are his treatise, *De Concordia Prædestinationis*, in which he essays the difficult task of adjusting human freedom to divine foreknowledge, and reconciling the consciousness of man and the facts of his life to the eternal laws of infinite justice and order; and the treatise, *Our Deus homo*, in which he states, illustrates, and develops, with a minute and patient logic, the great doctrine of "satisfaction," which has since his time ruled in the theory of the "atonement." Subsequent writers have modified some of his positions, and no single confession, Catholic or Protestant, accepts his theory in its length and breadth. But the general principle of this theory is still identical with the idea of orthodoxy in the significance of the Redeemer's death. Anselm still completes and interprets for the church the doctrine of the greatest of the Latin fathers.—The life of Anselm has been frequently written, not only by the brethren of his own order, but by Protestant writers and historians of philosophy. Making all allowance for the partiality of friendship and reverence, we may receive the account of Eadmer, his secretary (an author himself of considerable merit), as a true picture of the saint's sweetness, charity, and faith; of the visions which he saw, and the singular zeal of his daily life. By him it is recorded, that Anselm was wont to say, that if he saw hell open and sin

cape the second. His zeal was not, indeed, always accompanied by practical wisdom. As an administrator of the affairs and revenues of the church, he made many mistakes, and exposed himself to reproach. He was no match for men of the world on their own ground, and he was never at home except in the arena of religious debate, or in the cell of spiritual meditation. He professed that he had rather be a boy in the cloister, under the rod of a master, than chief shepherd of the church of Britain on the throne at Canterbury. Religious abstraction was "his bride." The elements of his character were quite unlike those of the famous prelate who came after him, and whose tragical death made Canterbury a shrine of such long renown.—The best and most complete edition of the works of Anselm, is that issued in 1875 at Paris, under the direction of the Benedictine monk, Gabriel Gerberon, who was aided in his task by the unpublished manuscripts of many libraries in France and England, and enriched his edition with his own notes and explanations. He separates the works of Anselm into 4 classes—the dogmatic and philosophical, the homiletic, the mystical and spiritual, and the epistolary. It is a curious fact, that Anselm left no exegetical treatises, and no genuine poems; yet compositions of the last kind have been falsely attributed to him. His style, though somewhat diffuse and (from the character of the reasoning) dry, is as good as the style of the writers of his age, if we except Abelard.

ANSIANY, JEAN JOSEPH ELÉONOR ANTOINE, a historical painter, was born at Liège in 1764. He belonged to a family, the members of which had been distinguished as lawyers, and was himself destined for the bar. His taste for painting, however, prevented this, and he devoted himself to his favorite art with such enthusiasm, that at the age of 17 he gained the gold medal for design, offered by the prince of Liège for his new academy of painting. A course of study in Antwerp, and in Paris under David, Regnault, and Vincent, followed. In the latter city he gained several prizes for meritorious pictures, and laid the foundation of his fame by his admirable portraits of Marshal Kellermann and Mlle Mezrai. His works are numerous, and consist almost entirely of historical paintings and portraits.

ANSLO, REINIER VAN, a Dutch poet, born at Amsterdam in 1626, died at Perugia, May 10, 1669. He was of an Anabaptist family, but upon a journey to Italy in 1649, joined the Roman Catholic church, and for a poem which he composed upon the jubilee of Innocent X., was rewarded by that pope with a gold medal, and received also a gold chain from Queen Christina of Sweden. Though his poems are sometimes marked by false pathos, he is justly esteemed among the best Dutch poets of his time. His principal works are entitled, "The Crown of the Martyr St. Stephen," "The Plague at Na-

ples," and a tragedy upon "The Parisian Nuptials, or the Eve of St. Bartholomew."

ANSON, a county in the south part of North Carolina, has an area of 650 square miles. It is bounded by Rocky river and by the Pedee. Its surface is hilly, but the soil good, especially productive of cotton. The Pedee furnishes abundant water power. In 1850 there were raised here 889,828 bushels of Indian corn, 85,796 of wheat, 95,118 of sweet potatoes, and 10,864 bales of cotton—the greatest quantity produced by any county of the state, except Surry. There were 20 churches in the county, 2 newspaper offices, and several flour, corn, and saw mills. The county was named in honor of Lord Anson, the English admiral. Capital, Wadesborough. Pop. 18,489, of whom 6,651 were free and 6,832 slaves.

ANSON BAY, in the Canton river, China, at the right of the entrance of the Boca Tigris, between the promontories of Chuenpee and Anunghoy. It is the water wherein a Chinese fleet was destroyed by a British fleet, Jan. 7, 1841.

ANSON, GEORGE, lord, baron Soberton, the famous circumnavigator of the globe, was born at Shugborough, in Staffordshire, April 28, 1697, and died June 6, 1762. He entered the navy when a boy, and after seeing a good deal of service in various parts of the world, was made a post-captain in 1724, and received the command of the Scarborough man-of-war. Between 1724 and 1735, most of his time was spent on the Carolina station, where he acquired some property, and founded the town of Ansonburgh. In the year 1739, England declared war with Spain; and the high reputation which Anson enjoyed at the admiralty, caused him to be appointed to the command of a squadron which was to proceed to the South sea, and harass the Spanish trade and settlements in that quarter. The expedition, consisting of 8 vessels, wretchedly equipped and some of them unseaworthy, sailed in Sept. 1740. He lost part of his fleet off Cape Horn, a great part of his men died of scurvy, and he finally crossed the Pacific ocean with only a single ship. In consequence of these disasters, the original object of the expedition was abandoned, but Anson was thus enabled to explore the coasts and islands of the Pacific, and make important discoveries. Every coast and harbor he visited was carefully surveyed, and he made a large collection of Spanish charts and journals. With his single vessel, he took Païta, and a number of ships, among them the Manila galleon, laden with treasure. Throughout the whole voyage he showed the most wonderful courage, prudence, and fertility of resource, beside the most tender care of his sick men, and humanity toward his prisoners. He returned home with his prizes in June, 1744, having eluded the French channel fleet during a fog, and was soon after made rear-admiral of the Blue. He commanded the channel fleet in 1746-'7. On May 3, 1747, he captured, off

Cape Finisterre, the French India fleet, consisting of 9 ships, carrying 420 guns. This achievement procured him a peerage. As one of the commissioners of the admiralty, he rendered important services to the country, displaying always the same judgment and foresight which marked his course during his Pacific expedition. In 1757 he was made the head of the admiralty, which position he occupied until his death. In 1761 he was made admiral of the fleet, and sailed from Harwich soon after in the Charlotte yacht, to bring the future bride of George III. to England. His death was caused by a cold which he caught in accompanying the queen's brother to Portsmouth. Anson's "Voyage round the World," prepared by Benjamin Robins from materials furnished by Lord Anson, passed through 4 editions the first year, and has been translated into most of the languages of Europe.

ANSON, GEORGE, late British commander-in-chief in India, born in London, Oct. 13, 1797, died of cholera at Kurnaul, May 27, 1867. He was the second son of Thomas, first viscount Anson, and brother of the first earl of Lichfield. At an early age he entered the Scots fusilier guards, with which regiment he served at the battle of Waterloo. He continued in the guards until he obtained the rank of lieutenant-colonel, May 19, 1825, when he was placed on half-pay. In 1828 he was returned to the house of commons for Great Yarmouth, which constituency he represented in several parliaments, before and after the passing of the reform bill. In Feb. 1836, on the death of Mr. Heathcote, he was elected for Stoke-on-Trent, and sat for the southern division of Staffordshire from 1837 to 1853, in August of which year he accepted the Chiltern Hundreds, on being appointed to his command in India. Under Lord Melbourne's administration he served in the office of the principal storekeeper of the ordnance, and officiated also as clerk of the same department, from July 1846 to Feb. 1852. In 1851 he was promoted to the rank of major-general, and, in 1855, on assuming the command in India, he received the local rank of general. On the death of Lieut.-Gen. Butler, in Dec. 1856, Gen. Anson succeeded to the colonelcy of the 55th regiment of foot. In politics he was a liberal, by hereditary descent and by personal convictions, and invariably sided with the leaders of the whig party. His appointment to the chief command in India was not so much justified by his military qualifications as by political and personal considerations. Gen. Anson was one of the best whist players in England, and a zealous patron of the turf, where he was better known as Col. Anson.

ANSONIA, a village in the town of Derby, Conn., which has grown up with almost unexampled rapidity. It is extensively engaged in manufactures, to which it owes its prosperity. It is on the Naugatuck.

ANSPACH, a province in central Germany, now belonging to Bavaria, but previously an

spanage of the royal family of Prussia. Its lords bore the title of margraves. The last margrave, Charles Christian Alexander of Anspach, disgusted with sovereign power, sold his sovereign rights in 1790 to Prussia for a yearly rent of \$800,000. His name was of some renown in the scandalous chronicles of Paris, Germany, and England. His wife, not less celebrated for her gallant adventures, was Elizabeth Berkeley, formerly Lady Craven, and margravine of Anspach.

ANSPACH, ELIZABETH, margravine of, youngest daughter of the fourth earl of Berkeley, born Dec. 1750, was married in May, 1767, in her 17th year, to Mr. Craven, afterward earl of Craven. She then, beside youth, had brilliant beauty, fascinating manners, and much natural ability improved by education. After Lady Craven had been married 18 years, during which time she had 7 children, she separated from her husband, proceeded on a very extensive tour (visiting Italy, Austria, Greece, Turkey, Poland, and Russia), and was received with *éclat* by several crowned heads. Finally, she went to reside at Anspach, then capital of a small German principality of the same name, where she established a theatre, wrote plays, directed the performance, and became an important personage with the margrave, whose wife was generally confined to her chamber by ill health, and soon after died. Lady O. continued a visitor at Anspach, and accompanied the margrave on his excursion to other courts, and his tours through Italy, England, and Portugal. Lord Craven died in Sept. 1791, and his widow, at the mature age of 49, was soon afterward married, at Lisbon, to the margrave, in a very public and ostentatious manner. Returning to England, her 3 daughters refused to see her, "out of respect to their father," her eldest son neglected her, and her brother, Lord Berkeley, reproached her for marrying again so soon after her late husband's death. Her reply was, that "it was 6 weeks after Lord Craven's decease that she gave her hand to the margrave, which she should have done 6 hours after had she known it at the time." To crown all, Queen Charlotte intimated that she could not be received at court, and refused to grant an audience to the margrave. Having sold his principality to the king of Prussia, in 1791 (for an annuity to himself and wife), the margrave settled in England, purchasing Brandenburg house, in the suburbs of London, subsequently so well known as the residence of Queen Caroline, wife of George IV. Here they lived very expensively, seeing much company (almost exclusively of the male sex), and having theatricals, balls, and concerts, as at Anspach. In 1802, the margravine received a patent from the emperor of Austria, creating her Princess Berkeley, but the queen of England still declined seeing her. In 1816, the margrave died, aged 70, leaving £150,000 to his widow. After wandering over various parts of Europe, the margravine finally settled

at Naples, living in a villa she had built on the Strada Nuova, on land given her by the king, and continued to reside there until her death, in Jan. 1828. Whatever the errors of her early life, her latter years, spent in literary retirement, while she gave liberal employment and aid to numerous poor, were highly respectable. The margravine wrote several farces and musical pieces, and was an accomplished composer. Some time before her death she published her "Autobiography," which, however, is only an apology for her life. She was related, by blood and marriage, to some of the highest nobility in England, and, when she died, was dowager-countess of Craven, as well as margravine of Anspach.

ANSTER, JOHN, an Irish poet, and regius professor of civil law in the university of Dublin, born at Charleville, in the county of Cork, in 1793. He graduated at Trinity college, Dublin, and published, in 1819, a volume of "Poems, with Translations from the German." These were favorably reviewed in "Blackwood's Magazine," to which some of them had been originally contributed, and gained for him the friendship and encouragement of Samuel Taylor Coleridge, whose philosophic conversation in his retreat at Highgate attracted frequent visits from the most intellectual and enthusiastic young men of the time. By his advice, Anster completed his version of Goethe's "Faust," specimens of which had already appeared in "Blackwood," and which, upon its publication in an integral form, received the applause of the "Edinburgh Review." It was the first of the numerous attempts which have been made to translate the masterpiece of the great German poet. Mr. Anster was called to the Irish bar in 1824, but from his retired habits and distaste for turbulent life, has confined his labors mainly to chamber practice. He now holds an office of small emolument under the court of admiralty, and a pension of £150 from the civil list has been conferred upon him for his services to literature. He published a second volume of "Poems and Translations," in 1837, and an "Introductory Lecture on the Study of the Civil Law" in 1849, and has been a frequent contributor to periodicals, especially to "Blackwood's Magazine," and the "Dublin University Gazette."

ANSTETT, JOHANN PROTOSIUS VON, born at Strasbourg about 1750, died at Frankfort on the Main, May 14, 1835, an Alsatian diplomatist in the Russian service. He emigrated to Russia in 1789, and after accompanying the prince of Nassau with the expeditionary army against Sweden, he was placed in the Russian chancery. From 1801 to 1811 he was attached to the Russian legation at Vienna. After discharging several other public employments he was named privy councillor of the empire in 1811, and in 1812 accompanied the Russian army under Kutusoff, where he concluded the treaty of Kalisz with the Prussian general, Von Lottum. After Kutusoff's death he accompanied the Czar Alexander, and, to-

gether with Nesselrode, concluded the treaty of Reichenbach in 1813, and occupied the post of Russian plenipotentiary at the congress of Prague. Here Narbonne and Caulaincourt, the French representatives, contested his admissibility on account of his being born a French subject. Anstett accompanied Alexander to Paris. He took a small and rather insignificant part at the congress of Vienna. After the battle of Waterloo, and the second occupation of Paris by the allied troops, he helped to draw up the convention of Nov. 20, concerning the army of occupation. His last diplomatic appointment was that of Russian minister plenipotentiary to the German diet.

ANSTET, CHRISTOPHER, the author of the "New Bath Guide," a poem which had a prodigious success in its day, was born Oct. 31, 1724, at Brinkley, Cambridgeshire, and died at Chippenham, in 1805. The "New Bath Guide" may still be perused with pleasure, as an amusing, and not too malicious satire, depicting a now defunct state of society. It is disfigured, however, by numerous gross passages. The principal targets for the writer's shafts are physicians and Methodists. His monument is in Poet's Corner, Westminster abbey.

ANSTRUTHER, Easter and Wester, 2 parishes of Fifeshire, Scotland, lying on the north side of the Frith of Forth. United pop. (in 1851), 1,526. Easter Anstruther has an excellent harbor. The famous Dr. Chalmers was born here.

ANT (*formica*), a well-known genus of insects, famous from remote antiquity for their industry, ingenuity, and economy; and for their instinctive comprehension of the advantages to be derived from division and combination in labor. There are many distinct species, from the small and innocuous kinds common to Europe and the United States, to the great poisonous black ants and destructive white ants, or termites, of the tropics; but their habits are, in general, so similar, that a single account will in the main suffice for all the varieties.—In every community of ants there are 3 distinct classes of individuals: the males, which have always 4 wings; the females, much larger than the males, which have wings only during the pairing season; and a sort of lower females called variously neuters, workers, and nurse ants, which are destitute of wings at all times. Early in the pairing season, both males and females are to be seen in great numbers in all the ant hills provided with white glistening wings, mixed with the wingless workers, who keep diligent watch over them, posting regular sentries and never allowing them to escape beyond the limits of the colony without a guard, 3 or 4 of whom may, at all times, be observed dragging back the deserters by the wings. There always seems to be a disposition among the winged ants to desert the colony, but the workers never accede to this truant disposition, but resist it to the utmost, nor ever yield, unless the breeders become too numerous to be fed or

guarded by the neuters. The actual copulation does not take place in the ant-hills, but at some small distance around it; and scouts are always on the look-out to drag back the fertilized females to the principal settlement, or to form small independent parties, which seize a female and found a colony on their account. Sometimes it will happen, so great is this propensity to ramble on the part of the females after their impregnation is complete, that an original settlement is wholly deserted; owing to the workers who have gone off in pursuit, if they have been led too far from home to care about return, forming fresh colonies in whatever place they succeed in capturing a fugitive queen. Occasionally, when an impregnated female escapes by herself, she lays her eggs and establishes her own colony unassisted by the workers; in which case she herself performs the duties to the eggs, which would otherwise be rendered by the nurse ants. The males, after their duties of impregnating the females are performed, are permitted to stray away, after their own pleasure, without any effort on the part of the workers to retain them; and die, it is supposed, shortly afterward, having neither stings for defence nor mandibles by aid of which to subsist themselves. It was formerly supposed that ants of both sexes, and those of none, all procured wings at a certain stage of their growth; but it was discovered, by the younger Huber, that in the female they are gradually developed from the first day of her existence, until, when their purpose has been fulfilled, they are, by her own action, dislocated and cast aside like worn-out clothes. The eggs of ants, unlike those of other insects, are neither glued to any one spot, nor lodged irremovably in cells, but are scattered about in parcels of 6 or 8, loosely attached to each other, so that they can be separated and carried about from place to place at pleasure, during the process of hatching. This is, during that season, the principal duty of the female and of the nurse ants; as it is, afterward, to do the same by the large cocoons; and no one who has observed an ant-hill at midsummer can have failed to notice the industrious individuals toiling, in swarms, to carry to and fro the large white masses apparently quite disproportionate to the size of the tiny laborers. It is this habit, the cocoons having been mistaken for grains of corn, which has led to the erroneous idea that the ants lay up grain in their subterranean houses for winter use—whereas, in the first place, they never under any circumstances feed on grain; and, in the second, during the winter they never feed at all, becoming torpid, and continuing so during all the cold season. As the eggs require a certain temperature to bring them to perfection, they are exposed by the workers and by the female, when alone, to the direct, or nearly direct, rays of the sun during the day in the early morning,—covered from its too powerful influence, which would desiccate them and destroy their vital principle during

the extreme heat of the day,—and carefully removed beyond the influence of cold or wet by night. As soon as the grubs are hatched, they are treated in the same manner, but more care is taken to preserve them from too great exposure to heat, as that is more injurious now than before they are hatched. Until their maturity the grubs, which are necessarily voracious, since they have not only to take up material sufficient for their own growth, but for the formation of the substance whence to spin their cocoons, are fed by the nurse ant, or by the female, when alone, by a liquid disgorged from the stomach of the parent, as is the case also with bees, wasps, canary birds, and pigeons. When a female has founded her colony alone, she must be at work early and late, and indefatigably industrious, in order to collect sustenance sufficient for herself and for the support of the 20 greedy grubs, which in that case depend solely on her for their support. As soon as the grubs have attained maturity they spin their cocoons, of a membranous texture and a brownish-white color, which considerably resemble barleycorns, and have been mistaken for them through many centuries. These cocoons are treated precisely as were the eggs and the grubs, in their exposure to proper temperature, and their removal from undue extremes of heat or cold, by the females or workers, until they are ripe for their second birth; when the young ants,—unlike the moths, ichneumons, and other cocoon-spinning insects,—being unable to extricate themselves from their cerements, are cut out of them by the mandibles of the nurse ants, and issue to life, as males, females, or workers, as it may be, according to some secret and undiscoverable operation of nature. Beside the labors of these working ants, or neuters, already described, they have the task of forming the streets, chambers, and habitations of the colony, repairing them, thatching them, fortifying them against the weather, by various operations—according to the various species and varieties to which they belong—of mining, masonry, or carpentry, performed with a perfection of skill which is inconceivable when the instruments with which they labor are considered; and under circumstances which argue the possession by them of some powers or senses neither known to, nor comprehensible by us; these things are performed by these little workers with mathematical precision, in cases where neither the sense of sight nor that of touch could by any possibility avail them. The most remarkable of the mining ants are the *formica sanguinaria* of Germany and the *formica cæpitem*, or turf-ant, of England, which perforate long galleries in the clay, through which they bore their habitations, removing all the rubbish, and building buttresses to support their work, by aid of their mandibles only, and then overcasting the whole with a thatch of grass-stems and heather against wet or cold. The most common of the mason ants are the red and yellow field-ants, which erect superficial

habitations; first raising pillars, then springing arches from pillar to pillar, and, lastly, erecting above them the loose piles of soil, which we know as ant-hills. Their materials for these edifices are the soil, sand, and clay, kneaded with rain water into a tenacious mortar, which is besmeared over wheat-stalks, blades of grass, or any casual supports which they can find, calculated to form the centre of their pillars, from one to the other of which they throw their arches, until they have completed a vaulted saloon, sufficient for their habitation and dormitory during the winter season of torpidity. The carpentering ants are those which, like the emmet, *formica fuliginosa*, perforate their cells in the solid timber of growing trees, boring or chiselling them out, side by side, at all sorts of divergent curves, and, sometimes, at right angles one to the other, apparently in conformity with no plan, and carried on in accordance to the will of the excavator only, until they come so closely into relation with another series of workings, that the divisions between them are not thicker than ordinary letter-paper; when they instantly terminate, or turn aside, without in any known instance perforating the partition between the several galleries.—The food of ants, instead of being, as we have all been educated to believe, winter-hoarded grain, is, for the most part, honey, in some of its modifications; but more especially the excretion of the various species of aphides, known as honey-dew, which is found besmearing the leaves of plants, and which is so injurious to the vegetables, when it becomes thick enough to obstruct the pores; and it is on this account that wherever aphides abound, ants will ever be found attending on their motions, in order to feed on their excretions; in consequence of which it is not uncommon to hear the devastations committed on the garden by the aphides attributed to the harmless ants. It has been stated that some varieties of ants are in the habit of capturing aphides and imprisoning them in their cells, with a view to feeding on their honey-dew, but apart from the consideration that ants, as has been observed, do not feed but lie torpid during the winter, it is not easy to conceive how the aphides should continue to deposit their honey-dew in captivity, having no flowers or fruit whereon to feed, and whence to derive it. This story may, therefore, be dismissed as apocryphal. Not so, however, are the strange accounts, lately corroborated, of some species of ants, especially the wood-ant, *formica rufa*, and the Amazon or warrior-ant, *formica rufescens*, as well as the sanguinary ant, *formica sanguinaria*; all of which species sally out in great swarms on belligerent and predatory excursions, for the purpose of capturing and bringing home to their own colonies the eggs and cocoons of other tribes, generally of the dusky ant, *formica fusca*, the inmates of which, when hatched in the fortresses of the victors, are compelled to lifelong labor, as the slaves of those who have the might, at least, if not the right, to command

their service. Independent of the annual migratory disposition of all the species, for the purpose of forming new colonies, sudden impulses—probably connected with facility of obtaining food—at times, appear to seize on certain varieties of ants, leading them all to take wing simultaneously; and, deserting their old habitations, to betake themselves by columns of winged nations “to fresh fields and pastures new.” Strange relations may be found in the “History of the Berlin Academy” for 1749, in the German *Ephemerides*, and in the *Journal de Physique* for 1790, of vast multitudinous clouds and whirlwinds of ants, darkening the air like thick vapors, and having a curious intestine motion, like that of the aurora borealis, unconnected with their line of flight, being seen at divers places, and, when they fell, literally covering the earth, so that one could not tread without crushing them by twenties at every footfall. For particulars concerning the habits and ravages of the great white ant of the tropics, see *TERMITES*, for that insect is not properly an ant.—For more extended details concerning the subject of this article, the reader is referred to the chapters on insect architecture, in the “Library of Entertaining Knowledge,” to the works of the Baron de Geer, and of the younger Huber, and to the interesting paper in Knight’s “English Cyclopaedia.”

ANT-EATER (*myrmecophaga*), an animal of the class *mammalia*, order *edentata*, distinguished by its total want of teeth and by its hairy covering; in which last respect it differs wholly from the scaly pangolins (*manis*), which are the ant-eaters of Asia and Africa, corresponding to this, which is peculiar to the continent of America. This singular creature is particularly distinguished by the construction of its anterior extremities, which differ, in many respects, from those of every known species; although they have many affinities with those of the sloth. Its feet, which are plantigrade, or such as tread on the whole sole, as is the case with the man and the bear, are armed with enormous claws, which are capable only, through the peculiar construction of the toes, of being bent downward and inward, into the palm, as it were, of the hand or sole of the foot. This formation renders it impossible for the animal to throw its weight flatly on its feet, as the points would in that case either be driven into the flesh, or blunted and broken on the soil. It is furnished, therefore, with callous pads on the outer edges of its feet, on which it walks entirely—a peculiarity which renders its progression so slow, that it hardly exceeds the pace of an ordinary sloth, and can easily be overtaken by a man at a walking gait, when on its fastest run. Its maxillary bones and those of the nose are also strangely constructed, forming a kind of tube, very long in proportion to its breadth and nearly cylindrical. The toes themselves differ in number in the different species; but all are distinctly marked by their elongated snouts, their jaws entirely unfurnished

with teeth, their little circular mouths, and their long cylindrical tongues, covered with glutinous saliva, capable of great protrusion and retraction. The species are 8 in number, well defined, and all peculiar to South America. They are: 1. The great ant-eater, *M. jubata*, called the ant-bear by the English and Spaniards, the tamandua by the Portuguese. He is a large, powerful animal; but the most stupid and inoffensive of quadrupeds, and unequal even to the exertion of his own great strength in self-defence. When full grown, he measures 4½ feet from his snout to the origin of his tail, and 3 feet 8 inches more to the extremity of the tail itself, reckoning the long loose hair; or 2 feet 4 inches measured along the stump. His head is 18½ inches long from the snout to the root of the ear; 10½ to the anterior angle of the eye. Its circumference on the crown is 14 inches, whence it diminishes gradually to the muzzle, where it is barely 5 in girth. At the shoulder, the ant-bear stands 3 feet 8 inches in height, and at the croup, only 2 feet 10, it being the case with all plantigrade quadrupeds that they are lower behind, owing to the greater length of the soles of the hinder feet. The tongue can be extruded to the length of 16 or 18 inches. His claws are 2½ inches in length, sharp-pointed and extremely trenchant on the inner edges, but owing to the peculiarity mentioned before, they are wholly useless as weapons of offence, and applicable only to the use for which they are intended, the tearing open the hills of the ants, which are his prey. His toes are 4 on the anterior and 5 on the posterior extremities. His tail is long, lax, sweeping the ground with its loose hairs on either side, and leaving a long sinuous track, where the soil is capable of impression. His hair is long, loose, and flowing, mixed with gray and brown on his head and cheeks; on the upper part of his body and tail, deep brown mixed with silvery white. A broad black stripe, bordered on each side by a narrower white one, runs along his sides from the shoulders to the rump, which is black. His arms and thighs are silvery white, and his hind legs wholly black; his breast and belly deep brown. At his ordinary gait, he slouches along with a slow, vacillating pace, smelling the ground at every step; and if pursued, flies at a heavy rolling gallop, not equal to the fast walk of a man. If pressed beyond this, he turns to defend himself, sits up on his hind quarters, and endeavors to master his enemies by hugging them to death, which he could easily do had he ordinary activity, intelligence, or courage; but failing in all the three, he is easily conquered by the meanest antagonists. He is wholly a terrestrial animal, never ascending trees, which he cannot climb in consequence of the formation of his claws, and the absence of prehensile power in his tail. The female has but 2 mammae on the breast, like those of the apes and the bats; she bears but a single young one at a birth, which attaches itself to her back, never leaving it until more than a year after it has

acquired strength enough to walk and provide for itself. This unprolific quality, as well as the slow growth of the ant-bear, is clearly a provision of nature for its preservation; since, were such large animals, subsisting solely on so small an insect as the ant, to become abundant, even where those creatures swarm as they do in the tropics,—their hills being, it is said, almost continuous over leagues of country,—they must, before long, perish and become extinct for the want of subsistence. Their food is solely and exclusively the various ants of the warm tropical climates which they frequent; they obtain them by tearing open the hills with their great, powerful claws, and then, when the frightened insects swarm out to defend their household gods, drawing their glutinous tongues over the ants, retracting them, and repeating the operation, at the rate, it is said, of 2 protrusions and 2 exclusions in a second, until their appetites are satisfied, which one would say—judging from the size, superior to that of the largest dog—could not soon occur on a fare so delicate and meagre. The ant-bear is hunted for its flesh, which is black and of a musky flavor, by the Indians and negroes, and at times eaten even by the European colonists. It is a native of all South America from Colombia to Paraguay and from the shores of the Atlantic to the foot of the Andes; but it is nowhere a numerous species, being rarely seen even in its native regions. Like all animals using a purely insect diet, it is capable of enduring a total deprivation of food for almost incredible periods. 2. The tamandua, *M. tamandua*, is a far smaller animal than the ant-bear, not exceeding the size of a large cat. Its head is less disproportionately long, but is of the same cylindrical form, truncated at the end, with that of the larger animal; with which also correspond, in every respect, the formation of its anterior and posterior extremities, the construction and number of its toes, and the shape and form of its claws. The most remarkable difference between the two animals lies in their tails, that of the tamandua, which is a purely sylvan animal, living exclusively in trees and never found on the ground, being bare on the inferior side and of singular prehensile power. The hair over the whole body of the tamandua is uniform, short, crisp, and shining; a sort of silky wool standing out from the body; and it varies so much in color in different individuals, more so, indeed, than in any known animal in a state of nature, that many naturalists doubt whether there may not be several as yet undistinguished varieties. The female, like the great ant-eater, has but 2 pectoral mamma, and bears but 1 young one at a birth, which is of a light straw color and very ugly. The tamandua feeds on termites, ants, honey, and even bees, which in those countries make their hives in the topmost branches of the forest trees, and being stingless are not dangerous either to rob or to devour. It is a native of tropical America. 3. The little or two-toed ant-eater, *M. didactyla*, is easily distin-

guished from both the other species by its far inferior size, which does not exceed that of the common squirrel. Scientifically, the different structure of its feet more widely distinguishes it from its congeners. It has but 4 toes on its hind feet, and 2, whence its name, on the fore feet. Its whole length, from the snout to the insertion of the tail, is but 6 inches; the length of the head is not quite 2 inches; while that of the tail is about 7. In general form it resembles the last species, but its muzzle is shorter and less tapering. Its ears are short and drooping, and are nearly concealed among the fur, which is long on the head and cheeks. The hair on the body and sides is long, soft, and glossy, much shorter on the tail, of a uniform light straw color, tinged with maroon along the back, where it has a strongly marked line. It has 4 mamma, 2 pectoral and 2 abdominal, yet, like its congeners, bears but 1 offspring at a birth. Its native countries are Guiana, Surinam, and Brazil; farther south it is unknown. Its habits are scarcely ascertained, though there are reasons for believing that it lives on the nymphæ of wasps, and sleeps during the day. It has been erroneously described, by some writers, as the young of the species last named, from which it is, as has been shown, wholly distinct. It can hardly be kept in confinement, owing to the difficulty of supplying it with food.

ANTÆ, in ancient geography, a Sarmatian, or Slavonic people, between the Dniester and the Danais, a branch of the Venedæ, or Vends. Justinian overcame them when he caught them in the Roman territory, and gave them new abodes on the other side of the Danube, that they might be a rampart against the Huns. From them Justinian took his title of Anticus. —ANTÆ, in architecture, signifies the bare undecorated walls sometimes projected on both sides of the door of a temple or building.

ANTÆUS, a giant of Libya, and son of Neptune and Terra, was a mighty wrestler of antiquity, who was invincible while he continued in contact with the earth. Whoever visited Libya was bound to wrestle with him, and with the skulls of the vanquished, who were all slain, he erected a temple to Neptune. Hercules overcame him by lifting him off the earth, and strangling him in the air.

ANTAGONIST MUSCLES (Gr. *anti*, against, and *agonizomai*, to strive). The muscles of the body are arranged so as to move the bones of the skeleton in various directions, and those which move a limb in opposite directions are called antagonist muscles. The flexor muscles of the arm, for instance, bend it inward at the elbow joint, the extensor muscles draw it back, or extend the arm in a direct line. The flexor and extensor muscles antagonize each other, not in efforts at simultaneous and contrary action, but in consecutive action of an opposite direction. There is, however, a sort of passive action in the different muscles of the body, constituting what is termed the natural tone of the

system, and when this is lost or partially enfeebled in one set of muscles, their natural antagonists have an undue action on the parts, and cause disfigurement by destruction of the natural balance. The form and position of the muscles of the face, for instance, keep up a balance of feature in the natural expression of immobility or stillness; those of one side antagonize those of the others. In paralysis of one side of the face, the muscles of that side are deprived of their natural tone and power of action, while those of the other side of the face retain their tone and power, as before; the consequence of which is, that the latter draw the mouth to their side of the face, while the others are unable to counterbalance this action by their want of tone and power to act in the opposite direction.—Certain muscles are antagonized by the natural elasticity of the parts to which they are attached; the elasticity of the ribs and of the windpipe may be considered as antagonistic to the natural tone and power of the muscles attached to them. Antagonistic muscles, therefore, have a counterbalancing tone and power of action in a state of immobility, and a moving power in opposite directions, during consecutive movements of the parts to which they are respectively attached.

ANTALCIDAS, a Spartan, who, at the end of the Corinthian war, was sent on an embassy to Tiribazus, governor of Susa, to negotiate a peace with Persia. He did so (387 B. C.), and the peace was called after his name. It excited universal indignation throughout Greece, for Lacedæmon had sacrificed to the Persian monarch the general interests of Hellas, in order to gratify her jealousy of the Athenians and Thebans. The peace of Antalcidas stipulated that the Greek cities of Asia Minor, as well as the isles of Clazomenæ and Cyprus, should be an integral part of the dominions of the king of Persia; that the other Greek cities should be free and independent, excepting the isles of Lemnos, Scyros, and Imbros, belonging to Athens. Thebes and Corinth, which were particularly affected by this treaty, refused to subscribe to its terms, but they were compelled by force, and Thebes had to surrender its supremacy over the minor Bœotian cities. Antalcidas, on his return, was publicly complimented, and made ephorus. On being sent again to obtain the promised subsidies from the Persian king, he found himself tricked by the Orientals. Disappointed, and fearing the popular indignation at home, he allowed himself to die of hunger.

ANTANACLASIS, in rhetoric, a figure which repeats the same word, like an echo, but in a different sense, as *dum vivimus vivamus*.

ANTANG, a village and district of the island of Java, east end, lat. 7° 48' S. long. 119° 0' E., lying 2,000 feet above the sea. In its vicinity are numerous Hindoo antiquities, consisting of figures of Brama, Ganessa, &c. Pop. about 16,000.

ANTAR, an Arabian prince and poet of the 6th century. Until the publication of the *Mines de l'Orient*, printed at Vienna in 1802, the name of Antar had scarcely been heard in Europe. Antar, however, is no imaginary person; he is well known as a celebrated warrior, and as the author of one of the seven poems suspended in the Caaba at Mecca. A copy of a work called "Antar," celebrating the exploits of the prince, is in the imperial library of Vienna; and in the catalogue of the books written by Von Hammer, there is some account of this romance. Abulfeda often mentions his intrepidity as being the subject of poetry, and refers to some of the facts found in the romance as to well-known causes of troubles and dissensions among the tribes. Though it does not appear that any precise composition relating to his feats in arms is extant, some detached pieces may have survived; oral tradition almost entirely must, however, have commemorated in verse, current among succeeding generations, those various proofs of heroism which were afterward embodied into one work as well as expanded and enriched by Asmai (called also Oumay), one of the most learned men of the age, at the court of the celebrated Haroun al Rashid in the second century of the Hegira. He appears to have been aided in this by Johainah and Abu Obeidah. In general the copies are bound up in numerous volumes of various sizes, from 40 to 20 or less, exhibiting a mass to appall the most enterprising of translators. The copy translated by Mr. Terrick Hamilton, oriental secretary to the British embassy at Constantinople, was procured at Aleppo, and is comprised in a smaller form than any other as yet sent to Europe. The voluminous work had, it appears, been curtailed of many of its repetitions and much of its poetry by some learned inhabitants of Syria, and was therefore called the Shamiyeh or Syrian Antar, in contradistinction to the original large work, which was called the Hijaziyeh or Arabian Antar. Though usually written in a continuous form the story may very properly be divided into 3 parts. The 1st reaches to the marriage of Antar and Ibla; the 2d includes the period when the hero suspends his poem at Mecca; the 3d comprises the death of Antar and most of his comrades and relatives. Von Hammer, the learned librarian of the imperial library of Vienna, who has twice read through the original, declares it to be "more interesting than the celebrated 'Thousand and One Nights;'" and Sir William Jones, the distinguished orientalist, says, "I have only seen the 14th volume of this work, which comprises all that is elegant and noble in composition. So lofty, so various, and so bold is its style, that I do not hesitate to rank it among the most finished poems." To the Arabs it is a standard work; read by some, fixed in the memory of others; but listened to with avidity by all. Mr. Burckhardt mentions in a letter that when he was reading a portion of it

to the Arabs, they were in ecstasies of delight, but at the same time so enraged at his erroneous pronunciation, that they actually tore the sheets out of his hands. In Aleppo it is highly valued, particularly by the Armenians; and in coffee-houses it is read aloud by some particular person who keeps a sheet in his hand, to which he occasionally refers to refresh his memory. It is given to children, who are obliged to copy it out, and thus acquire the habit of speaking elegantly and correctly; and it may be attributed to this cause, that the copies of *Antar* are generally found most execrably written, and abounding in errors of every kind. It is certainly one of the most ancient books of Arabian literature. Its language is uncommonly pure, equally remote from the harshness of the earlier, or the conceits of the later authors; and when we consider that it was originally written in the Oufic character, and has for a thousand years been transcribed chiefly for the use of the Bedouins, and often by persons who probably did not comprehend one word they were writing, it is a matter of surprise that it has retained so much purity and correctness. We give two brief extracts to show with what freshness and vigor this ancient poem touches the tender and the terrible, reminding the reader strongly of the song of Solomon, and also of that other ancient Arabic poem, the Book of Job.—“O, Ibla, my description cannot portray thee, for thou comprehendest every perfection. Were I to say thy face is like the full moon of heaven, where in that full moon is the eye of the antelope? Were I to say thy shape is like the branch of the erak tree; O thou shamest it in the grace of thy form. In thy forehead is my guide to truth; and in the night of thy tresses I wander astray. Thy teeth resemble stringed jewels; but how can I liken them to lifeless pearls? Thy bosom is created as an enchantment. O may God protect it ever in that perfection!” Here is a battle scene, full of a sanguinary fury that belongs to the wild warrior of the desert: “This day will I raise a battle that shall humble the warriors of ages long past. I will make the blood to stream from their joints, when the skulls of the warriors leap from the blow of my sword. How many chiefs, when they see me eager in the fight, throw away their arms, and save themselves by flight! I am the bold one. As to the fire of war, I kindle it, and hurl the tribes into punishments and death. Death, in the direful combat, fears me, when the battle-dust rises, and the sand-cloud is like a blazing fire. My joy is in the encounter of heroes, when spears and swords clash in my grasp. How many battle-dusts have I dived into fearless of calamities! The joy of contests is my object; it is all my desire. Verily deeds will I perform unrivalled; deeds that shall be recorded on leaves and books. I will raise the tumultuous din, and seas of blood; ’tis in their crimson billows that my gladness abounds. I will make the atmosphere like the sable night, when the dust-

clouds roll over the regions like a veil. No companion have I in battle but my horse and my sword; and they complain of my fury; they exalt me; they subject death to me. My ambition soars above Pisces; and my resolution raises me above the Persian and the Arab.”

ANTARCTIC, a term denoting something opposite to the northern or arctic pole.—ANTARCTIC CIRCLE, a circle round the south pole, corresponding to the arctic circle round the north pole.—ANTARCTIC SEA, the expanse of water surrounding the south or antarctic pole, and reaching from the pole to the antarctic circle, or $66^{\circ} 30' S.$ This portion of the earth's surface has been but very imperfectly explored hitherto. It is much less known to navigators than the regions in corresponding latitudes north. It is known to be much colder than the region about the north pole, and much less habitable. While the absolute limits of vegetable life have not yet been attained in the far regions of the north, not the minutest trace of a moss or an alga was discovered upon the entire antarctic continent, so far as traced by Wilkes, D'Urville, and Ross. Now is it possible that any tribes of the human family can exist in these bleak regions. Of animals there are, however, a few species met. Penguins, the blue petrel, whales, sea-elephants, and other amphibious or semi-amphibious animals, are found in considerable numbers. On the whole, the antarctic ocean and its islands and continent may be considered the bleakest and least valuable portion of the earth.

ANTARCTIC RESEARCHES. While the regions about the north pole have been from very early times favorite scenes of research and exploration, the attempts to penetrate southward toward the south pole are comparatively few and of late date. The first navigators who are known to have passed the antarctic circle (the parallel of $66^{\circ} 30' S.$) are Capt. Cook and Furneaux. Cook reached lat. $67^{\circ} 15' N.$ in E. long. 89° , Jan. 17, 1773. The following Jan. (1774) his extreme point was $71^{\circ} 10' S.$ long. $106^{\circ} 54' W.$ In 1819 the Russian Belinghausen attained to lat. 70° , and in 1821 discovered Alexander's and Peter's lands, or islands, in lat. respectively of $68^{\circ} 48'$ and $68^{\circ} 57'$, then the southernmost lands known. Feb. 20, 1828, Capt. Weddell reached lat. $74^{\circ} 15' S.$ in long. $84^{\circ} 16' 15'' W.$, finding there an open sea, with many whales and birds. He was obliged to retrace his steps, and passed, on his way north, through 1,000 miles of sea much encumbered with ice. In 1839 the sealing schooner *Eliza Scott*, sailing from New Zealand, discovered 5 islands in lat. $66^{\circ} S.$ and long. $163^{\circ} E.$ One of these, estimated at 12,000 feet high, emitted smoke. On March 20, the same year, it discovered Sabrina land, in lat. $69^{\circ} 58' S.$ and long. $121^{\circ} 8' E.$ In Dec. 1839, the U. S. exploring expedition, under command of Capt. Wilkes, left Sydney on an expedition into the waters of the antarctic ocean. Jan. 13, 1840, when the vessels were in lat. $61^{\circ} 30' S.$ long. $161^{\circ} 05'$

E., they first discovered ice islands from the masthead. On the 16th, land was discovered, which proved eventually to be a portion of a vast antarctic continent, the existence of which was hitherto unknown. Steering along this land (which was entirely ice-bound) until the 22d, they then got soundings in less than 500 fathoms. On Jan. 28, the Vincennes explored Disappointment bay, a large inlet in the shore of the newly discovered continent, 25 miles wide and 15 deep, and situated in lat. $67^{\circ} 04'$ S. and long. $147^{\circ} 30'$ E. The dip of the magnetic needle here was $87^{\circ} 30'$, which proved that the vessel was very near the southern magnetic pole. The expedition a few days after actually passed the meridian of this magnetic pole. Capt. Wilkes computed its exact situation to be at that time in about lat. 70° S. and long. 140° E. When in long. $142^{\circ} 40'$ E. and lat. $65^{\circ} 54'$ S., having hitherto sailed along the shore, catching occasional sight of land, the vessel was forced to steer north before a driving south-east gale. Sailing south, they again sighted the land, and then traced its shores along from long. 140° E. to long. 101° E., finding that the coast gradually tended northward, so as to place them, when in long. 101° E., in lat. 68° S. Although the expedition was not able to effect a landing upon any portion of the actual shore (the ice-barrier extending in all cases to a distance of from 8 to 12 miles seaward), many different circumstances point to the conclusion that the shore traced is that of an uninterrupted continent. About islands there is invariably found a current from the south, which causes the ice to move. Here the ice-barrier was unmoved, and there was evidently no inlet leading south, through which a northerly current could escape. Moreover, the formation of the land was entirely different from that common to islands. The shores did not rise so precipitously from the sea. The water shoaled gradually toward the shore. The ice-masses were evidently grounded; and, where they had turned over, masses of rock, parts of the antarctic continent, were found embedded in the ice. From these and other evidences, Capt. Wilkes was led to the conclusion that from Ringold's knoll on the east, to Enderby's land on the west, the land exists in one uninterrupted line; and that the coast to the westward, gradually trends to the north.—In 1840, a French expedition, under Com. D'Urville, sailed from Hobart Town. They also discovered land and traced it in a continuous coast line between long. 186° and 142° E. Capt. James Ross commanded three English antarctic expeditions in 1841-'2. In these he brought further proof of the previously ascertained existence of a vast antarctic continent; and besides, succeeded in penetrating to lat. $78^{\circ} 10'$ S., the highest south latitude ever attained.

ANTEDILUVIANS, a name given to the entire human family existing before the flood. There is little or no history of the antediluvians. A few verses in the writings of Moses

contain the sum of Jewish literature on that subject; and, while all nations have a tradition of a deluge, they are very nearly equally destitute of history on the subject. Even the chronology of the antediluvian age is involved in the greatest obscurity and contradiction of authorities. The nearest harmony that can be attained with regard to it, still leaves, between Josephus and the Septuagint version, a contested period of 686 years, and a still greater one between the Septuagint and Samaritan. The chronology founded on the Hebrew text is the one in common use, which makes the antediluvian period 1,656 years. Of the human family during this period we know very little that gives us an insight into their social or political life, or throws light on the great problems of philology or ethnology. If the antediluvians had a literature or were versed in any of the arts or sciences, the smallest vestiges of neither have survived the catastrophe which swept them from the face of the earth. It appears that they were under the patriarchal form of government, which argues for a limited development both of mental and physical resources, though it seems that they built cities and understood agriculture, and regarded the rights of property. There are also slight intimations that they had a knowledge of music and astronomy. We may also infer, from the circumstances related of Noah and his immediate posterity, that the antediluvians understood architecture, masonry, and something of chemical processes. They are recorded to have attained to great age. Human life appears to have averaged about 800 years. This circumstance is, in one view, favorable to the theory of a more civilized condition, as each could attain more knowledge and property in a lifetime, while in another view it argues a simpler mode of life than is consistent with protracted physical or mental labor. Burnet and Whiston have made some curious calculations in regard to the population of the antediluvian world, which result in the conclusion that there must have been upon the earth at the flood 10,737,000,000 inhabitants.

ANTELOPE, an animal of the family *antelopeæ*, ruminating mammalia, with hollow horns, conical, bent back, cylindrical or compressed, ringed at the base. The knee, or wrist, is in the middle of the fore leg. The occipital plane forms an obtuse angle with the frontal plane. The core of their horns is thin, consisting of a dense bone, often with a clear sinus within. Teats 2 or 4. Feet pits in the hind feet, and often in the fore feet also. Perhaps the most certain characteristic of the antelopes is the cylindrical and annulated form of their horns, which are never angular, or provided with prominent longitudinal ridges, like those of the sheep and goats, from which they are distinguished by this point of their construction. They are also generally, although by no means universally, distinguished by having the lachrymal sinuses, peculiar to the solid-horned ani-

mals of the cervine family, and possessed by the antelopes alone of the hollow-horned ruminants, though not by all the species. In other respects, the different species of antelopes vary as widely as can be conceived—in the curvature of their horns, which sometimes have a single forward or backward bend, and sometimes are lyrate, or curved so that, when opposed directly to each other, they assume the figure of an ancient lyre, the brachia, or sides of which instrument were often made of the horns of the common gazelle—in their coats, which are sometimes smooth and sleek, like those of the deer; sometimes hirsute, with beards, like those of the goat; and sometimes maned and tailed, like those of the horse, ass, or zebra—and in their muzzles, which are sometimes smooth, moist, and naked, like that of the ox; sometimes rough and hairy, like that of the goat. Many approach the deer so closely, that the hornless females of the two families can hardly be distinguished apart; although the difference would appear on dissection, the true solid-horned deer being possessed of neither gall-bladder nor gall-duct, which belongs to all the hollow-horned ruminants. It is remarkable that the name of this family of animals, in all languages, from the Greek *Dorcæ*, *Dorcælis* and *Damalis*, the Hebrew *Tzebi*, and the Arabic *Ozazel*, which we render gazelle, to our antelope, are all significant of the brightness and beauty of their eyes, or of their extraordinary powers of vision. They are probably the fleetest, as they are the most beautiful and most graceful of quadrupeds; they are, generally speaking, both gregarious and migratory—occasionally uniting in vast herds, which cover the whole face of the country with columns of a league in width, flowing onward in a continuous current, like the flocks of the passenger pigeons of America, for hour after hour, without interruption. Africa is the head-quarters of the antelope family, both in regard to the variety of the species, the extreme grace, beauty, and size of the individual members, and the incredible numbers of the droves, which wander, at their regular seasons, through the vast wildernesses of its still almost unexplored central region. To the strangely interesting work of Rovalen Gordon Cumming, the reader is referred, as to that which gives the most glowing, graphic, and life-like description of the individual varieties of the wild cattle constituting those multitudinous herds, which it tasks the imagination to realize to itself when related; and of the wonderful scenery, in which they have their habitations, and for every variety of which, whether it be the stony, pathless precipice, the arid desert, where water is not to be found in journeyings of many days, the rich aromatic pastures, which bestow on their flesh that delicious thymy flavor so grateful to the hunter's appetite, or the deep, reedy river beds and dark morasses, they are so wonderfully adapted.—Australia and Madagascar possess no antelopes, their place in the former singular territory

being occupied by the kangaroo; central India and Hindostan have several varieties; western Europe and America, each but a single species.—Originally, the whole number of species of antelopes were referred to a single family. But they are now distinguished into 2 great divisions, the antelopes of the fields, whose nostrils are smooth and free from hairs; and the antelopes of the desert, which are bearded and have bristly muzzles. There are other distinctions, which might be noted in a work of larger compass; but these are the most obvious, and are in themselves sufficient. The antelopes of the fields are again subdivided into 8 groups: the true antelopes, which have a light, elegant body, slender limbs, small hoofs, short tails, lyrate or conical horns, placed above the eyebrows; the cervine antelopes, with stout deer-like bodies, strong, slender limbs, long tails, cylindrical at the base, with the hair longer at the ends, and muzzles like those of the cervine ruminants; the goat-like antelopes, which have a short heavy body, strong hoofs and false hoofs, very short tail, flat and hairy above, and recurved conical horns.—Of the true antelopes, which are, perhaps, the most graceful of all the tribes, the most remarkable are the lovely gazelles of Egypt, Barbary, and Asia Minor, whose eyes are the poetic hyperbole for the loveliness of woman; the yet more beautiful Ariel gazelle of Egypt and Kordofan; the magnificent pallah, *A. apyceros melampus*, of southern Africa, with its splendid, annulated lyrate horns, and its sleek hide, painted with brilliant rust color and white, divided by coal-black shining lines; the common antelope of India, *A. cervicapra*; the madoqua, *A. saltrara*, the smallest of all horned animals, not exceeding a hare in size; the steinbok, the ourebi, the grysbok, the klippringer, and the bush goat, with the red reed buck, the water buck, and the sable antelope of southern Africa; the last 8 of which will be found fully and frequently described, with all their ways and habits, by the great African hunter and explorer alluded to above. Of the cervine antelopes, by far the most remarkable and the noblest are the gemsbok, *oryx gasella*, and the oryx, *oryx leucoryx*. The former is a superb animal, standing 8½ feet high at the shoulder, with long straight horns, annulated at the base, and of sword-like sharpness. His hide is of a deep blue gray above, and snow-white below, divided into accurate compartments by marked lines of jet black. Cumming speaks in rapture of their squadrons sweeping across the wild karroos, with their pointed horns erect, flashing in the sunlight like the sabres of a troop of dragoons. The gemsbok is as powerful and brave as he is beautiful and active; the lion himself, except when sorely pushed with hunger, dares not attack him; and, when he does so, is sometimes beaten off in disgrace, sometimes dies in the attempt. The two animals have been found linked together, mutually killed in the death-grapple, the king of the desert transfixed by the

horns of the great antelope, and he crushed by the overpowering weight of the leonine paws. The oryx is supposed by some imaginative persons to have been the type from which was derived the idea of the unicorn, as if both its horns seen in profile had been mistaken for one; but as the horns of the oryx are curved, not straight, and as, instead of projecting forward from the middle of the brow, they point with a backward slope nearly to the croup of the animal, he is a good deal less like a unicorn than is a horse, which has no horn at all. The oryx is a native of Nubia and Senegal.—Another remarkable cervine antelope, not far inferior in size to the last, is the addax of Senegal, which has preserved its name unaltered since the days of Pliny, who has described it as the *strepsiceros*, a term accurately depicting the construction of its horns, adding that it is called by the Africans addax. Of the goat-like antelopes there are several of the oriental species; but the two most conspicuous are the European chamois, or antelope of the Alps, *rupicapra tragus*, resembling a goat more, almost, than it does either deer or antelope, save that it has no beard, with its short erect horns, suddenly curved backward at the tip, and its coarse hair, beneath which lies a close coat of wool; and the American pronghorn, *A. americana*, which has considerable affinity to the chamois, especially resembling it in the structure of its horns, which are, like those of the Alpine antelope, erected and curved only at the tip, but then inward instead of backward; they are, also, provided with a short anterior, medial prong. The winter coat of this antelope differs from that of any other, known animal; the hairs, which stand out to the length of 2 inches, at right angles to the body, being hollow and tubular, like the quills of a bird, and nearly as brittle as glass. This antelope is well and fully described in Dr. Richardson's *Fauna Boreali Americana*.—The antelopes of the desert are divided into two groups, the equine antelopes and the bovine antelopes. Of the equine antelopes there are but two species, the gnu, *A. gnu*, of South Africa, called the *wildebeest* by the Boers, which is nearly of the size of the ass, has precisely the body, neck, mane, tail, and paces of a small horse, with the limbs and hoofs of an antelope, strong decurved horns bending down over its eyes, nearly to its muzzle, and rising again nearly to the level of its ears, and thickly bristled nostrils—and the brindled gnu or gorgon, *katoblepas gorgon*, called by the Boers the *blauw wildebeest*, of the same country. The bovine antelopes are the *A. bubalis* of northern Africa, equal in size to the largest stag, called by the Arabs *bekker-el-wash*, or the wild ox, the harte-beest, the blesbok, the bontebok, and the sassabee—all described by Cumming—of southern Africa; the korrigum of Senegal, and the doria, or gilded antelope, of western Africa. To these, which complete the list of antelopes, as scientifically distinguished, may be added the highly interesting group of *strepsiceros*. This

group of antelopean ruminants includes the superb koodoo, *strepsiceros kudu*, which is fully 4 feet high at the shoulder, with horns nearly as long as the male is high, reflected in a beautiful sweeping spiral of 2½ turns; the eland, *oreas canna*, which is as large as a horse, weighs from 7 to 9 cwt., unlike most antelopes is always fat, and is said to furnish meat superior to beef. It is perfectly gentle, easily domesticated, and it is a matter of wonder that it has not been introduced as an addition to our domestic cattle; and, to conclude, beside some other species less worthy of notice, the great nil-gau, *portax tragocamelus*, one of the largest of antelopes, having much the character of the ox, with the horns, head, and muzzle of an antelope; the flat compressed neck of a horse, with a thin erect mane, increasing into a tufted bunch on the shoulders, and a singular beard-like tuft of stiff hair growing out of the middle of its throat, peculiar to itself alone. Its fore legs are somewhat longer than its hind ones, and its withers rise so much as to give it the appearance of having a hump. Its color is deep slaty blue, with a white spot on each cheek, and a large white patch on the throat. It is a native of the deep forests of India, where it is a vicious and dangerous animal, but it has been taken to England, where it lives and breeds.

ANTENATI, a Latin word, signifying born before. The Scotsmen who were born before the accession of James I. to the English throne, were called *antenati*, and considered as aliens in England; those born after the accession were called *postnati*.

ANTENNÆ, horn-like members placed on the head of insects and crustaceous animals. The antennæ are commonly called feelers, but their functions are not understood. In insects they are two in number; in crabs and lobsters there are more than two. The antennæ of insects are usually composed of minute articulated rings, containing nervous threads, muscles, tracheæ, and cellular tissue, forming organs of sensation, motion, and respiration. In most orders, the articulations amount to 10 or 11 in number, although they are much fewer in some species, while in others they reach even to 150. The length of the antennæ does not depend on the number of articulations, as they are often long when of only 3 or 4 pieces, and the reverse. They are inserted on the front of the head in the region of the eye, and connected by means of a ball and socket. The distinction of sex in some species is marked by the peculiar formation of the antennæ. In moths, the antennæ of the male are of more simple construction than those of the female. In moths and beetles they are much longer than the body, while in the common house-fly they are comparatively short.—Linnaeus and Bergmann supposed them to be organs of touch, and they were thence termed feelers; but M. Straus-Dürckheim states that insects are proved by observation to be furnished with an organ of hearing,

and he is of opinion that the antennæ are the insect's organs of hearing. He adduces many cogent reasons to show that the antennæ are not feelers or special organs of touch, and that they are, most probably, special organs of hearing. Professor Bonadorff, of Abo, in Finland, and other naturalists, have adopted the same opinion. The younger Huber has attributed to ants the use of the antennæ in a sort of language, which he terms the "antennal language," understood not only among ants themselves, but also among the aphides, which furnish the secretion called "honey-dew," on which the ants are wont to feed. This view is generally deemed conjectural, however, by other naturalists.

ANTENOR, a Trojan prince, son of *Ætætes* and *Oleomestra*, and one of the wisest among the elders of Troy. He counselled his fellow-citizens to give Helen up to the Greeks. It is said that, having been sent to negotiate for peace with Agamemnon, he was so base as to concert a plan for delivering up the city itself.

ANTEQUERA, a city of Andalusia, in Spain. It is situated in a fruitful valley, surrounded by lofty mountains, containing numerous marble quarries. While the Moors held the kingdom of Granada this city was a fortress of great importance, and the possession of it was constantly contested. A Moorish castle, built on Roman foundations, still exists in the upper part of the city. The inhabitants, 17,000 in number, are chiefly employed in agriculture and the manufacture of cloth and leather.

ANTEROS, the god who avenges the wrongs of outraged lovers, according to some; but according to others, the brother and antagonist of Eros, or Cupid.

ANTHELMINTICS (*αντι* against, and *ελμς*, worm), a class of medicinal substances which have the power to kill or expel worms from the intestines. Different kinds of so-called worms infest the stomach and intestines of man; none of which, however, are properly called worms, for they belong to a different division of the animal kingdom. Worms belong to the *articulata* or *annelida*; intestinal entozoa, to the inferior division of *polypti* or *radiata*. With this preliminary observation, we may use the popular names by which these different kinds of entozoa are best known.—The long thread-worm, or *trichocephalus dispar*, is found in the cæcum, or commencement of the large intestine. The maw-worm, or shorter thread-worm (*oxyuris vermicularis*, *ascaris lumbricalis*), inhabits the rectum. The large round worm (*ascaris lumbricoidea*) is usually found in the small intestines. The broad tape-worm (*tanias lata*, *bothriocephalus latus*) also inhabits the small intestines, and though seldom found in Great Britain and some other parts of Europe, it is frequently found in the inhabitants of Russia, Poland, and Switzerland. The tape-worm (*tanias solium*) is also found in the small intestines, generally alone, but occasionally three or four together. The fluke, or *distoma hepaticum*, is sometimes found in the

liver and gall-bladder of men, and very commonly in those of sheep and goats.—The thread-worm and the large round worm are most common in children; the tape-worm, in adults.—The presence of worms in the intestines is not always easily determined by particular symptoms, but there are general symptoms on which we can more or less rely. The countenance is generally pale, and of a somewhat leaden hue; the face is subject to sudden flushings, mostly limited to one side only; where the brightness of the eye is lost, the pupil is enlarged, and the lower eyelid surrounded by a livid circle. The nose is often swollen, and affected by continual itching; or it may be liable to frequent bleeding. The tongue is coated, and the breath tainted. Pains in the head and singing in the ears are also common symptoms. The appetite is more or less capricious; sometimes there is none, at other times it is voracious. There is often a feeling of nausea, with violent colics; the bowels are irregular, and often relaxed; stools sometimes slimy; bowels swollen and hard; the urine often turbid; the body is emaciated; the sleep disturbed. Children often grind their teeth in sleep, at night, and become indolent and variable in temper during the day. These symptoms are not always present where there are worms. Enormous tape-worms have at times been passed, where no derangement of the general health had been observed, and not the least suspicion had been entertained of their existence in the system.—The origin of worms in the intestines is still a mystery. Some have regarded them as the result of spontaneous or equivocal generation within the intestines; others maintain that they are introduced into the stomach from without, either along with the food and water, or in some other way; as germs, or in so small a form as to be unobserved. However the worms may be at first produced, when once developed in the intestines, they are propagated like other animals of the same organization; i. e. by parents of distinct sexes; for the ova or eggs produced by the female have been seen in the oviducts before they escape, and have also been observed among the contents of the intestines, before development as perfect worms. It seems more probable that the germs of these entozoa have been introduced from without, than that they have been generated spontaneously within the system. We may easily conceive of their previous existence in water, or in substances we take as food. The question is, however, yet unsettled.—Worms prevail more in some countries than in others; whence it is supposed that climate and the surrounding conditions of life have much to do with their development in certain constitutions. They are very frequently met with in Holland, although the people are remarkable for their personal cleanliness and attention to food. The constant moisture of the atmosphere is injurious to the action of the skin, and apt to produce general weakness in persons who take

but moderate exercise; for such a climate requires constant physical exercise to keep the blood in tone, and the skin in a sufficiently active condition. Moisture, therefore, favors the development of entozoa in weakly constitutions.—The same causes produce rot in sheep, which is always accompanied by the presence of a worm or fluke (the *distoma hepaticum*) in the liver. The same means also prove successful in preventing their formation and development in both cases. For, as people inhabiting moist climates are most subject to intestinal worms, so only sheep feeding in marshes and wet pastures are subject to the rot. All debilitating conditions, however, predispose human beings to have worms. Impure air and insufficient ventilation weaken the constitution, and hence the greater frequency of worms amongst the crowded populations of large cities, than amongst the robust population of the country.—Weakly constitutions and bad external conditions being the main predisposing causes, we find that females and children, especially those of a delicate and scrofulous diathesis, are those most subject to worms. Bread and butter, milk and cheese, vegetables and farinaceous food, being generally deemed simple and good in themselves, are given to children *ad libitum*; and where the existence of worms engenders a ravenous appetite, the digestive organs are still further weakened by over-distension with poor food, which they cannot well digest. The principle of treatment is to strengthen the person and destroy the worms. The means of strengthening the digestive organs consist of tonic and astringent medicines. Vegetable bitters both strengthen the stomach and poison the worms. Camomile tea and the infusion of quassia or of gentian are excellent; and to these may be added hydrochloric acid, or the tincture of muriate of iron; or for children, the tartrate of iron, being almost tasteless, may be preferred. The utility of vegetable bitters has been proved by the facts authenticated in Lord Somerville's reports; i. e. that wherever the bog-bean (*menyanthes trifoliata*) or the tormentil grow, however damp the pastures may be, the rot never infests the sheep; nor are the sheep which feed in salt marshes, or have salt mixed with their food, subject to the rot. When the ancient laws of Holland forced culprits to be kept on bread alone, unmixed with salt, as the severest punishment that could be inflicted on them in that moist climate, the effect was horrible; the wretched criminals are said to have been devoured by worms, produced by this inhuman treatment. In drier climates the effects would not be so severe; but still a certain amount of salt and condiments with food is necessary in all countries. Salt and vegetable bitters, then, are the best preventives. Garlic, wormwood, pomegranate root, and camphor are also deemed efficacious against worms. Oil of turpentine, castor oil, and calomel are used for expelling them when dead. Camphor and ether, however, are only

used for worms in the stomach or in the rectum, as their effects would be lost before reaching other parts of the alimentary canal. The rectum is sometimes infested by myriads of thread-worms (*oxyuris vermicularis*) which can only be destroyed by ether. The tape-worm is usually expelled dead by a large dose of oil of turpentine combined with castor oil; and the long round worm is expelled by smaller doses. Where the unpleasant smell and taste of turpentine are objectionable, the *brayera anthelmintica* may be given instead. It belongs to the same natural tribe or family as the tormentil; i. e. the *rosaceae*. The root of the pomegranate is highly esteemed in India; and the root of the male fern is deemed useful in Switzerland against the broad tape-worm (*bothrioccephalus latus*), where that kind of worm is more frequently met with. Against other kinds of worm the male fern has been found less efficacious. The long round worm is almost invariably expelled by the Indian pink (*spigelia marylandica*), which belongs to the same natural family as the bog-bean, or water trefoil; namely the *gentiana*. The small worms which infest the rectum, can hardly be influenced by medicines taken in the mouth. Ether applied locally is the best remedy for them. Cowhage, tin filings, and mechanical irritants, are now abandoned by scientific physicians. They irritate the mucous membrane, and are deemed more injurious to the patient than to the entozoa that infest the system.

ANTHEM, a sacred composition for one or more voices, the words of which are generally taken from the psalms, and used in cathedral service. Anthem singing has been familiar to the church from the earliest times, and is divided by musicians into five species, consisting of verse and chorus, of chorus alone, of solos and chorus, and of any mixture of these accompanied by instruments. An anthem is now commonly understood to be any sacred tune or piece of music set to words from the psalms. The term *anthema* was applied by the Greeks to a kind of dance accompanied by singing.

ANTHEMIUS. I. Emperor of the west from 467 to 478 A. D.; was the son of Procopius. He was invested with the purple at the suggestion of Ricimer, who ultimately became his son-in-law. Anthemius and Ricimer soon quarrelled, however, and then the latter, proclaiming Olybrius emperor, laid siege to Rome. The city was taken by storm, and Anthemius was slain. His private character was good. II. An eminent architect and mathematician of Tralles in Lydia, who flourished in the 6th century of the Christian era. He was one of the architects who were selected by the emperor Justinian, to superintend the building of the church of St. Sophia. A fragment of one of his mathematical works was published at Paris in 1777.

ANTHER (Gr. *ανθηρ*, flowery, agreeable), according to Linnæus, is the pollen-bearing part of the flower, the male organ of the plant. In some plants it immediately adheres to the fe-

male organ (in L. class *gynandria*); in many several anthers are borne on a common stalk, called *androphoron* (man-bearer); in most each anther stands on a free thread (*filamentum*). The androphoron is thick, cylindric, with two or three rows of anthers; or slender, with three anthers; in many papilionaceous (butterfly-like) flowers, it surrounds the style of the pistil, and bears 9 anthers, while one anther stands on a filament (in L. class *diadelphia*); in malvaceous plants it forms a column, containing the style in its centre (L. *monadelphia*); in some several groups (L. *polyadelphia*). In most genera of plants each anther stands on a filament, and both together are named *stamen* or *andria*. The number of stamina is the characteristic of 18 classes of Linnaeus's sexual system of plants; while their relative length determines 2 classes (3 longer and 3 shorter, *didynamia*; 2 longer, 4 shorter, *tetradynamia* L.). Connate anthers in compound flowers characterize L. *syngenesia*. The anther appears in the flower-bud before its support, as a wart or scale; it then consists of tender, homogeneous cellular-tissue, within a thin skin. Afterward vessels are formed, and this tissue becomes lax in 4 places, which are separated by delicate radiating cells. The anther grows by a development of intra-utricular cells. Out of the relaxed tissue originates the *pollen*, whose single grains are considered by Endlicher to be eggs. The 4 birth-places of the pollen become as many lodges (*loculi* or *thecae*), separated from each other by a *septum*, and each pair by a more solid body, the *connective*. The latter is attached to the end of the filament or to the androphoron. By the increase of the cellular mass the shape of the anther becomes cylindric, and then the partitions are indicated on its surface by 2 marginal seams or furrows, and often also (either forward or backward, seldom on both sides together) by connectiveal seams. In most cases the septum is torn or absorbed, and then the anther becomes, in the progress of development, *bilocular*; and if the connective also disappear, *unilocular*. Thus in the orchideae the anthers are sometimes bilocular, sometimes quadrilocular, in a few octilocular. In the *viscum* (bird-lime) the two lodges are subdivided hive-like (*A. multilocular* or *favosa*). The shape of the anther depends chiefly on the evolution of the connective, which increases by mere expansion of the existing cells. Where the connective is equal in length to the lodges of the anther they are parallel, and attached to it through their whole length; where it extends beyond one end of the lodges, they become slanting; where it is shorter than the lodges, they are wrongly called bifid (two-split). Globous or ellipsoid lodges touch the connective in their middle. The connective is mostly obtuse above, seldom emarginate, sometimes pointed, awl-like; sometimes with appendages, spurs; sometimes swollen below, covered with warts; sometimes ending in threads, &c.,

according to the species or genera, or families of plants. In some the connective stretches out like the beam of a balance (in the *salvia*), resting with the middle on the filament; in some it is shield-like, having several lodges on its lower page (*A. peltata*; in the juniper, cypress, &c.). The shape of the anther is linear, lanceolate, oblong, ellipsoid, suborbiculate, kidney-like, cordate, hastate, in various plants; its direction straight, seldom bent, hooked, meandering; its extremes pointed, beaked, bristly, emarginate, horned, eared, &c. Sometimes a pollen lodge is little or not at all developed, then the anther is said to be dimidiate (halved). In many *salvia* (sages) the emaciated lodge feigns the appearance of a gland; while in the birch and hazel, the anther is split. On the surface the anther is mostly smooth and bald, seldom glandular, hairy, bearded (in many *lobeliaceae*). Where the anther is not sessile, it rests on the filament or androphoron by the base or back of the connexivum, rarely in front inward, or hangs below the apex of the filament. The lodges are most frequently turned outward. In genuine tulips the connexivum has a funnel-like hollow, wherein the filament is fixed. The filament is frequently thin at the apex, so that the anther seems to be articulated with it, then it is movable; but where the filament goes over into the connexivum, without tapering, the anther is immovable. When the pollen is ripe, the anther opens (*dehiscit*), in consequence chiefly of the great attraction of moisture to the spiral cells, commonly at the marginal seam, with a long fissure; less frequently at the apex with one or several holes (*pori*). The wall of each lodge is separated into 2 valves of various size and direction; in some plants the opening shows lids; in the bird-lime the lodge wall disappears altogether. After the dehiscence, the anther having poured out its pollen-grains, shrinks, wrinkles, twists itself variously, and either remains attached to its support or drops off, with or without it. The pollen-grains, issuing from the pollen-mass, are brought into contact with the stigma, in manifold ways; they swell there, and send forth, through the bursts of their external covering, a tubular bladder (*budellus pollinicus*, *tubulus pollinis*) into the canal of the pistil-style downward, into the endosperma of the germ, where it forms several cells, the rudiments of the embryo. The fecundation and propagation of the plant is thus performed differently from the theory of former phytophysiologists, who held that the pollen-grain was discharged on the stigma of the pistil. Meyen, Schleiden, Schacht, and other great microscopists, declare the molecules, which move about very vigorously in the mucilage of the pollen-tube, to be animals (*phytoespermata animalia*). To the anthers correspond the *antheridia* of cryptogamous plants. (See POLLEN.)

ANTHING, FRIEDRICH, a German soldier and artist, born at Gotha in the middle of the 18th century, died in 1805 at St. Petersburg.

He followed the fortunes of field-marshal Suwaroff in the capacity of aide-de-camp. He acquired fame by his profile portraits, an album of which is preserved at Gotha. He met with much success in this branch of art at the courts of Constantinople, Vienna, and Berlin.—KARL, brother of the preceding, died at Gotha in 1828, was lieutenant-general in the Dutch army, and governor-general of the Dutch possessions in the East Indies.

ANTHOLOGY (Gr. *anthos*, a flower, and *logos*, to collect), a collection of short poems and beautiful passages, from different authors. These poems are called epigrams. An epigram is a poem expressing a single thought, clearly, and in a lively and pointed manner. Meleager, a Syrian, 60 B. C., was the first compiler of an anthology. He called his work the "Crown," and prefixed a short poem called the "Garland," in which he gave a description of the book, and of the authors quoted. Philip of Thessalonica was the next compiler. In the 6th century Agathias made a collection. Constantine Cephalas, in the 10th century, and Maximus Planudes, in the 14th century, collected epigrams. Johannes Stobæus made a collection in the form of a common-place book, for the instruction of a favorite son, in which he preserves specimens of 800 authors, many of whom have not a line preserved elsewhere. In the last century, Brunck and Jacobs have produced good editions.

ANTHON, CHARLES, LL. D., an American classical scholar, born in the city of New York in 1797. His father, Dr. G. C. Anthon, was by birth a German, and attained the rank of surgeon-general in the British army, in which he appears to have served from the beginning of the French war until the final surrender of Detroit, about 1788. He then resigned his commission, and having previously married the orphan daughter of a French officer, settled in New York, where his descendants are among the most respected citizens. Charles was the 4th of his 6 sons, and entered Columbia college in the year 1811. In 1815 he graduated with honor, and commenced the study of law, in the office of his brother, Mr. John Anthon. In 1819 he was admitted to the bar of the supreme court. While studying law, he appears not to have neglected the study of the classics, and in 1820, at the early age of 23, he was appointed adjunct professor of languages in Columbia college. In 1830 he produced his large edition of Horace, whose copious notes and learned "excursions," at once gave him an honored place among classical scholars. In this year, also, he became rector of the grammar school attached to the college, continuing still to do the same amount of duty in the college itself, and laboring, quite as strenuously as before, for the press. In 1835 Prof. Moore resigned, and Prof. Anthon succeeding him, thus became the head of the classical department of that institution. For many years, at least, it was his constant custom to retire at 10 and rise

at 4, so that a large part of his day's work was done by breakfast time; and it is this untiring industry that has enabled him, despite his incessant labors, both in college and in school, to produce some 50 volumes, consisting chiefly of editions of the Latin classics, and aids to classical study. As an instructor he has few superiors. He has also done young men many a kindness, and when first made rector of the grammar school, he conferred on the public schools of his native city 6 free scholarships. As a scholar, he is at once accurate and thorough. His works have often been republished in England, and used extensively in her schools.

ANTHONY, DR. FRANÇOIS, an English alchemist and empiric, born in London 1550, died 1628. After having received the degree of M. A. at the university of Cambridge, he returned to London, where he applied himself to the practice of medicine, and the study of chemistry. In 1598, he published a treatise on a medicine drawn from gold, which, as he asserted, he had invented. Not long after, he was fined by the college of physicians for practising without a medical diploma, and, refusing to pay the imposition, was thrown into prison, whence, however, he was released in 1602. He afterward continued to practice with much success, but his treatise excited a good deal of opposition, and one or two replies to it were published, which Anthony answered by a pamphlet in defence of his *aurum potabile*, or potable gold. At his death he left a large fortune, the gains, in great part, of his successful practice.

ANTHONY, SAINT, the Great, a native of upper Egypt, born A. D. 251. He was an eminent anchorite, and is generally reputed, together with Paul of Thebes and Pachomius, to have been the founder of monachism. He was born of wealthy parents, who, for some reason, were unwilling he should be educated in any except his mother tongue. Having embraced a literal apprehension of Christ's direction to the young man in the Gospel, he distributed his property to the poor, and retired to a forest. He was a violent opponent of Arianism, and at the request of Athanasius left his retirement to go to Alexandria and confute the Arian heresy. He built at least 2 monasteries during his life, one at Phaium (805), and another called Pispir, near the Nile. He died (356) in his cell. During his seclusion he is said to have neglected ablutions, clothed himself simply in a hair shirt, and fought with devils. He was reported to have cured a cutaneous disease known before his time as the "sacred fire"—but afterward St. Anthony's fire, and later, erysipelas. On this tradition an order bearing his name was founded (1095) for the care of patients with this disease by Gaston, a rich nobleman, in gratitude for a supposed cure wrought on his son by the reputed bones of the saint. St. Anthony is represented in the Greek pictures, with a crutch, bell, and the letter T on the left shoulder. The crutch was significant of age, the

bell of his power to exorcise spirits, and the letter T an allusion to the name in the forehead in Revelations, and was the initial of *Θεος* (God).

ANTHONY, SAINT, of Padua, born at Lisbon, Aug. 15, 1195, died at Padua, June 18, 1281. He was one of the leaders of the newly established order of Franciscan monks, and, zealous of martyrdom, embarked for Africa, was shipwrecked on the coast of Italy, and preached with wonderful eloquence and success in the cities of Montpellier, Toulouse, Bologna, and Padua. He was canonized by Pope Gregory IX. in 1282, and is honored especially in Portugal and Italy among the most eminent of the saints. His remains are interred in one of the most beautiful of the numerous churches of Padua.

ANTHRACITE (Gr. *ανθραξ*, coal), the most condensed form of mineral coal, and the richest in carbon. Its color varies from jet and glistening black to dark lead gray; it is clean, not soiling the hands; ignited with difficulty; burns with a short blue flame without smoke, and

with very little illuminating power. It gives an intense concentrated heat. Some varieties, when undisturbed while burning, partially retain their shape till nearly consumed; and some become extinct before they have parted with the whole of their carbon. The constituents of anthracite are carbon, water, and earthy matters—not in chemical proportions, but in accidental and varying mixtures. There are also other ingredients occasionally present, beside the oxide of iron, silica, and alumina, which compose the earthy matters or ash. These are sulphur, bitumen, &c. All coals, including in this designation naphtha, petroleum, asphaltum, &c., are but representatives of the successive stages in the change from vegetable to mineral matters. Anthracite is the condensed coke of bituminous coal. In some varieties the volatile bitumen is only partially expelled. These are known as "free-burning anthracites," "semi-bituminous coals," &c. The following table presents the composition of several of these varieties, and also of some bituminous coals and other combustibles for comparison:

ANTHRACITES.	Locality.	By whom Analyzed.	Specific Gravity.	Carbon.	Water & other vol. matter.	Ashes.
SCHUYLKILL.....	Mauch Chunk.....	Olmstead.....	1.55	90.10	6.60	3.30
".....	Tamaqua.....	Rogers' Reports.....	1.57	92.07	5.08	2.90
".....	Beaver Meadow.....	W. E. Johnson.....	1.53	85.84	9.40	5.06
".....	".....	".....	1.56	91.64	6.89	1.47
LACKAWANNA.....	".....	".....	1.43	88.98	6.86	4.66
".....	Carbondale.....	".....	1.40	90.28	7.07	2.70
POTTSVILLE DISTRICT, (Red Ash).....	Peach Mt., Delaware Co.....	Rogers' Reports.....	1.46	86.09	6.96	6.95
".....	Shenoweth Vein.....	Johnson, mean of 40 specimens.....	1.50	94.10	1.40	4.50
VIRGINIA (White Ash), ".....	Price's Mountain, Montgom- ery County.....	Rogers' Reports.....	1.37	89.25	2.44	8.30
".....	".....	A. H. Everett, New York, 1857.....	1.35	85.84	10.50	3.66
RHODE ISLAND.....	Portsmouth Mines.....	Dr. C. T. Jackson.....	1.35	87.50	7.00	5.50
".....	".....	".....	1.35	77.50	18.00	9.50
".....	".....	".....	1.35	87.40	6.90	6.40
MASSACHUSETTS.....	Manfield.....	".....	1.78	92.00	6.00	2.00
".....	".....	De Schafhaeuti.....	1.36	92.48	5.97	1.61
PURE WELCH.....	".....	".....	1.36	92.48	5.97	1.61
MIDDLE WELCH.....	".....	".....	1.36	92.48	5.97	1.61
mean of several kinds, FRENCH.....	Mayenne.....	Dr. A. Fyfe.....	1.37	71.40	17.80	10.80
JURASSIC FORMATION.....	Lamure.....	M. V. Regnault.....	1.37	90.73	8.84	0.94
".....	".....	".....	1.36	88.54	6.89	4.57
SEMI-BITUMINOUS.						
MARYLAND.....	Frostburg, Neff's.....	Johnson.....	1.38	74.53	15.13	10.34
".....	Howell's Estate.....	Stillman.....	1.38	76.77	14.66	8.57
".....	Lonsaconing Comp'y, George's Creek thick bed.....	Johnson.....	1.35	70.75	16.08	13.23
".....	Maryland Company, Eckert Mine on main bed.....	".....	1.44	68.56	15.63	15.83
PENNSYLVANIA, Som- erset County.....	Mean result of analyses on 10 veins.....	".....	1.38	69.78	19.59	10.68
VIRGINIA.....	Brush Mountain, Montgomery County.....	Wm. B. Rogers.....	1.38	80.20	18.60	6.20
FAT BITUMINOUS COALS.						
OHIO, Jackson County, ".....	Madison Township.....	J. L. Cassels.....	1.56	89.95	44.30	14.63
".....	Lick Township.....	W. W. Mather.....	1.28	49.83	47.83	2.23
VIRGINIA.....	Mines near Richmond, Black Heath pits.....	Johnson, mean of 4 specimens.....	1.38	58.79	82.57	8.64
".....	Creek Coal Company.....	Johnson, mean of 6 specimens.....	1.38	60.80	81.13	8.57
NEWCASTLE.....	England.....	Karsten.....	1.26	67.65	81.50	0.85
".....	".....	Dufrenoy & Berthier.....	1.27	60.50	85.50	4.00
NOVA SCOTIA.....	Pictou.....	Johnson.....	1.39	60.78	26.76	12.51
JET.....	Saint-Girons.....	Regnault.....	1.316	71.94	28.93	4.08
PERFECT LIGNITE.....	Lower Alps.....	".....	1.376	69.05	37.94	8.01
ASPHALTUM.....	Mexico.....	".....	1.068	78.10	19.10	2.80
PEAT.....	Champ du Fer.....	".....	1.068	57.00	89.67	5.33
WOOD, av. composition,	".....	".....	1.068	49.60	43.36	2.04

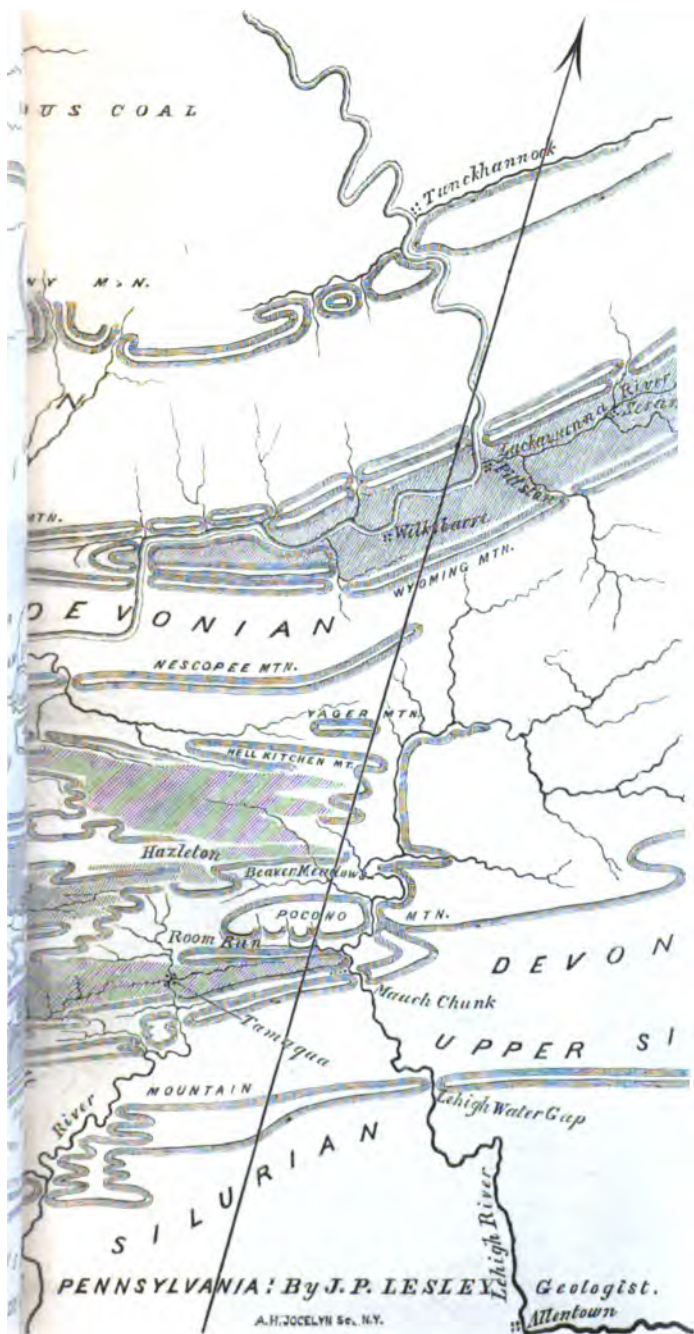
The late Dr. Teschemacher, of Boston, suggested the exhibition of the various characters of diversity of the coals, which are specific gravity, quantity of carbon, and quantity of hydrogen, by a scale, as follows :

	Hydrogen.	Carbon.	Sp. Gravity.
Asphaltum	9 per cent.	78.10	1.063
Hillsboro' Coal			1.09 to 1.13
Cannel	5.66 to 6.00	81.	1.30
Bituminous	4.90 to 5.30	81 to 86	1.29 to 1.33
Anthracite	3.40 to 4.30	89 to 92	1.34 to 1.47
Graphite	none.	99	2.27

From the above analyses, and others of foreign anthracites, which might be given, it is seen that the percentage of carbon in the American coals of this class ranges from 85 to 92. In anthracite of South Wales, it has been found to reach as high as 95, and in a Russian variety, 94 per cent. The volatile matter may be bitumen, sulphur, and water; but only the last appears to be a necessary, constant element. It has been found in largest quantity in those coals which are most thoroughly freed from bitumen, as in the Rhode Island anthracite. According to the analyses of Dr. C. T. Jackson, these often contain from 9 to 13 per cent. of water.—The ashes are the earthy matters, including in part those which constituted a portion of the original woody fibre, and such as may have been subsequently introduced during the changes this has undergone. The manner in which the original potash has been removed from the vegetable substances, is not understood. According to the color of these ashes, the coals are classed as red and white-ash. The red-ash contain a considerable proportion of oxide of iron, which gives them this color. They are generally more easily kindled, and a freer burning coal than the white-ash; but from the liability to clinker or form cinders, which melt and adhere to the walls of the grate or furnace, they are not so much esteemed for purposes which require considerable draft, as the white-ash variety, which shed their ashes freely. To burn in open grates with a moderate draft, the red-ash coal is preferred by many. For making pig-iron in blast-furnaces, the preference seems generally to be for the white-ash anthracite. This may be owing to the slight difference in the percentage of carbon, the less proportion in the red-ash being made up by the greater amount of ashes. A comparison of 23 analyses of different white-ash Pennsylvania coals, gives an average of 4.62 per cent. of ashes; and of 21 analyses of red-ash Schuylkill coals, 7.29 per cent. of ashes. The latter, therefore, contains 2.67 per cent. more of ashes than the white-ash coals. Of this 2.67 per cent., about one-tenth, or 5 lbs. to the ton of coal, is iron, which goes to increase the product of the furnace. Sulphur, which renders any fuel in which it is appreciably present, objectionable for use in the manufacture of iron, does not appear to be found in one variety of

the anthracites any more than in the other. The following essentials to a good anthracite fuel for producing steam, or for domestic use, are condensed from those given by Prof. H. D. Rogers: 1. Great actual heating power. 2. Ease in kindling and rapidity in burning. 3. Little earthy matter, and this as infusible as possible. 4. Little or no sulphur. 5. Volatile matters should be free inflammable gases, not bituminous, causing smoke; and only enough of these to expedite the combustion; as the more fixed carbon, the greater the heating power. 6. Neither a tendency to crumble in the fire, nor to obstinately retain their form while burning. 7. "The lower the temperature at which an anthracite will kindle and maintain itself burning, the more manageable, more active, and more economical will it prove. 8. The better a coal unites the tenacity necessary for economical transportation, with this medium amount of fragility in the fire, the larger the effective result of a given quantity, from the time it leaves the mine. 9. And the greater the aggregate of positive heating power, rapidity of combustion, and compactness of storage compatibly assembled in a coal, the nearer does it approach the ideal standard of a perfect fuel."—The relative values of different fuels are determined by the quantities of water evaporated by a certain weight of each. In the earlier experiments, made in this country and in England, the results obtained appeared to establish a law, that the richer a coal is in fixed carbon, the greater is its heating power; and the anthracites were thus classed as of higher value, weight for weight, than the bituminous coals. As the results necessarily varied with the manner of conducting the experiments, particularly as to the rapidity with which the water was made to evaporate, the kind of boiler used, &c., the conclusions could not be regarded as absolutely established. Still, it was given as the opinion of English engineers of eminence that "the strongest fuel was that which contained the least gas, and *vice versa*," and that bituminous coal has no greater heating power, than the coke that remains after its gases are expelled. (Transactions of the Institution for Civil Engineers, vol. ii.) The best results obtained in actual working operations, were those of Dr. S. L. Dana, of Lowell, Mass. They were made in the year 1839 on boilers of different forms and arrangements. With a Cornish boiler and Beaver Meadow anthracite, the amount of water evaporated for days together to the pound of fuel was 13.25 lbs. from the initial temperature; which is equal to 15.56 lbs. from a temperature of 212°. The maximum attained at times was 16.64 lbs. of water evaporated with one pound of coal. Dr. A. A. Hayes, at the Roxbury laboratory, Mass., using $\frac{1}{2}$ anthracite and $\frac{1}{2}$ bituminous dust, evaporated 11.83 of water from 212°, with one of fuel. Dr. Andrew Fyfe, president of the society of arts for Scotland, with Scotch bituminous coal evaporated 7.74; and with semi-





bituminous coal, containing 71.4 per cent of carbon, 10.10 of water from 212° , with one of fuel; and from an English bituminous coal, 9.07 of water. Watt's trial with Newcastle bituminous coal gave 9.63 of water. These experiments, harmonious as they appear in their results, have not been sustained by the reputation acquired by the different coals in common practice. Neither do they accord with the conclusion arrived at by the German chemist, Welter, whose investigations, directed to the determination of the quantities of oxygen required to complete the process of combustion, led him to the simple law that the heat disengaged is proportional to the quantity of oxygen, which enters into the combination, whatever may be the nature of the combustible. Berthier, the French chemist, recognizes this law; and upon it is based the determination of the heating powers of fuels by the quantity of litharge, or oxide of lead, which a given quantity of the fuel will deoxidize. It is admitted by Dr. Muspratt, in his late work; and the values of American coals, as determined by the important experiments of Walter R. Johnson, are for the most part in accordance with it. As hydrogen and the gaseous products of its combination with carbon consume much larger proportions of oxygen than the same weight of solid carbon, the presence of these increases the heating power of the fuel; but the change of structure and of physical properties, which their increased proportion induces, soon imposes a limit upon the advantage they confer, and each variety of mineral coal is found to be adapted for some particular uses in preference to the others. (See FUEL.) The density of anthracite renders it particularly adapted for metallurgic uses. Its freedom from smoke recommends it for the use of war steamers, their movements not being exposed by the products of combustion; its compactness also admits of a larger quantity being stowed in the same place than of other fuel. For the use of locomotives, its density, though favorable for stowage, is disadvantageous in giving too concentrated a heat, causing the grate-bars, and parts of the furnace next to the fire, to be soon burned out. By want of sufficient fire-room, the gases produced escape before they have been fully consumed, though ingenious expedients have been devised for introducing jets of atmospheric air, that the combustion might be thoroughly effected under the boiler. These objections, and others arising from the forming of clinkers which obstruct the draft, from the longer time it takes to get up steam with anthracite, the greater weight of the locomotive required, and the sifting through the grate-bars caused by the jarring motion, have greatly retarded its general introduction upon our roads. This is much to be regretted; for the great demand along their lines for fuel, has led to the rapid cutting off of the forests and the breaking up of large interests dependent upon them. Thus the important manufacture of charcoal pig-iron upon the Harlem and other

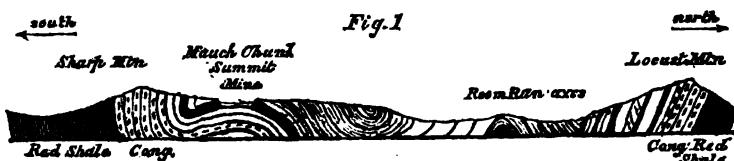
railroads is almost or entirely ruined, and the value of the enormous beds of rich ore greatly depreciated. Had the railroads adopted the policy from the beginning, of using mineral coal, which every one sees they must eventually do, these interests would have been fostered, adding greatly to the business of the roads, and the cost of fuel would have been much reduced. For, from the success which has attended its use upon some of the roads, the difficulties to be encountered are by no means so serious as many have supposed. In Pennsylvania, anthracite was introduced on the Beaver Meadow Road in 1836, and has been in constant use ever since, with most favorable reports of its economy and convenience. On the Hazleton road it was employed in 1838, and for 12 years a single engine run with it during the season of navigation without interruption, and with less repair to fire-boxes and flues than is usual with other fuel. Only about 2 sets of grate-bars are burnt out each season of 8 months. On the Hudson river road, the cost of anthracite on a late trial trip from New York to Poughkeepsie was \$13.25; of wood it is usually 4 cords, costing \$28.—Concerning the origin of anthracite, its connection with the vegetable kingdom is too distinctly traced to admit of any reasonable doubt, that the stony fuel once formed parts of growing plants. On examining pieces of anthracite in almost any heap of it, some fragments are sure to be met with in which may be seen bits of charcoal, with the vegetable fibre as distinct as in freshly charred wood. These, in connection with its chemical composition, suggest that it was once woody matter. Additional evidence of this is afforded by the vegetable reticulated structure, which is detected by powerful microscopes, pervading the substance of different kinds of coal; and even the ashes of anthracite still retain distinct traces of the vegetable tissue—so tenacious is nature of preserving the record complete of her works, for those who take the pains to investigate them. Even the various genera of the plants, which furnished the carbon for the different kinds of coal, are ascertained with precision. For examination under the microscope, the coals are cut in thin plates, polished, and made transparent by an application of oil. Thus prepared, some of them, as those of Newcastle and St. Etienne, display the compressed cellular tissue peculiar to peat; others the wood of conifers (of the pine family); others of the palm, and others of the birch, &c., &c. Some beds again appear, when thus closely examined, but a mass of delicate leaves matted together.—The late Prof. Bailey, of West Point, gave particular attention to the microscopic examination of anthracites. He found that every layer of coal is composed of vegetable matter, which still retains distinct traces of the original organic structure. Beside these proofs, so singularly delicate and beautiful, are others, that require no microscope to present them to the incredulous eye. The beds of slate, interstratified with coal, abound in the impressions of leaves and

stems of plants, and even trunks of large trees, converted into stone, the last-named coated frequently with a bark of anthracite. Single trunks have been found nearly a hundred feet in length—trees allied to the pines, but of different species from any we are now familiar with; and their roots, too, which we have named *stigmæria*, are rarely absent from the bed of fire-clay, which is the underlying stratum to almost every coal bed. These peculiar fossils have been found near Liverpool attached to an upright fossil trunk, and spreading out as roots from its base; and again near Manchester they were uncovered in a bed of the fire-clay 1,000 feet below the surface, spreading more than 15 feet from the main trunk. In Cape Breton, 8 such stems with their *stigmæria* roots, have been uncovered in a slate bed. They were within a space of 80 feet.—Many varieties of coal exhibit a laminated structure, thin layers of pure carbonaceous matter alternating with other layers of a more earthy character. This peculiar structure is so frequent, that it indicates a general cause; and none seems so probable, as that each most carboniferous lamina represents the accumulation of a certain season of growth, which was succeeded by one of repose, when the clayey sediment increased in proportion. It is this clayey sediment introduced into the coal-bed, that explains the presence in all mineral coals of more ashes than the same quantity of vegetable carbon should contain.—The evidences of the vegetable origin of anthracite afforded by its structure, its ashes, and the associated fossil plants, render it needless to trace out, in this place, the beautiful series of changes from the original wood or peat, by which it has reached its present condition; or to more than simply refer to the fact, that such changes are still in progress, and may be witnessed in every stage. In the article COAL this subject will be further treated. All the generations of man may not include time enough to detect any individual change; but one generation may nevertheless determine the fact that such are ever going majestically on.—The last change, however, which is from bituminous coal to anthracite, should not be thus passed over. The bituminous coal-beds of the English mines are sometimes traversed by dikes of basalt or trap, as recent strata are traversed by similar dikes of lava. Near the line of contact with the trap, the bituminous coal is converted into anthracite. The bitumen has been expelled by the heat, and the coke thus produced is condensed by the pressure around it into the solid form of anthracite. In South Wales, bituminous coal-beds are found growing less and less bituminous, as they approach the district of igneous rocks, till they become entirely anthracite. In our country, the same phenomenon is observed in the bituminous coal-field of the James river, near Richmond, Va. Beds of coal are converted into coke upon a large scale. But the process is more completely carried out, and upon a most magnificent scale,

in the coal-basins of Pennsylvania, which consist of similar piles of strata, each basin isolated from the rest by lower formations of rock intervening, so that the identical beds cannot be continuously traced out and recognized, from one basin to another. The fact, however, is the same, that the bituminous coal-beds are remote from districts occupied by igneous rocks—that the strata which contain them are comparatively undisturbed, while the containing strata of the anthracite beds (unmistakably identified as the same) are greatly contorted, broken up, and metamorphosed by their proximity to the seat of igneous action.—Upon the granites and other primeval rocks as a floor, a series of stratified rocks have been deposited in various parts of the world, in an order of succession that admits of many members of the series being recognized and identified in different continents. The fossils they contain of animals and plants, peculiar to each group of strata, aid and confirm this identification. This series, from the floor of unstratified rocks to the uppermost member of the coal formation, is well called the *palæozoic* series, or those containing the relics of the most ancient forms of life; as those still older and beneath are called *æzoic*, or exhibiting no evidences of life. Throughout a large portion of the middle states, and extending beyond the Mississippi river, this series spreads over the greater part of the surface. West of the Alleghanies it reposes in strata nearly horizontal, or gently waving in long swells. All this vast region appears to have risen slowly and grandly together from the bed of the ancient ocean in which its foundations were laid. But east of the mountains this crust has been greatly shaken. In the hands of its Maker it has been wrinkled and folded together, its members compressed and distorted; but though even thrown into zigzag forms, the order of their succession is left undisturbed. The series consists of sandstones and conglomerates, limestones and slates, in distinct and separate groups or formations. A single formation, as that of the lowest limestone, the second great group of the series as seen in Pennsylvania, is found to measure more than a mile in thickness; and all the formations of the series measured across their line, one after another, as they come up to the surface, attain a thickness of not less than seven miles. Subjected as these rocks have been to the denuding action of water exerted on a scale commensurate with their extent, and with the other influences that have affected them, the arches of the great flexures and zigzags have been cut off and swept away. The lower groups thus intervene and separate the higher ones into isolated patches. The hard sandstone rocks, withstanding better than the rest the action of the waters that have carried mountains into the sea, project in long ridges, which traverse the states from north to south, and are repeated in nearly parallel lines along the different folds or waves. These sandstones,

of which there are four great formations in the series, have each their peculiar topography. Each one retaining throughout its extent its distinctive structure, and the adjoining groups not changing theirs, while the causes that have operated to give them their forms have been universal, it follows that the same outline must define the same rock formation in all its range. So thorough and exact has been the working of this law, that they who have made these subjects their study, recognize by the forms of the mountains the rocks concealed within them as instinctively and unerringly as one recognizes a familiar friend, when only the external dress is seen. The limestones and shales more easily worn away by the denuding forces, now occupy the depressions and valleys along by the sides of their more rugged neighbors. Passing from the region of granitic rocks near the coast, these different formations are crossed as we approach the main Alleghany mountain. On the back of this, sloping down its western side, and spreading over the country in this direction, is the great bituminous coal-field. The anthracite basins have been passed in the isolated patches above referred to, which are separated from each other by the lower rocks intervening. In Pennsylvania, as seen by the accompanying map prepared by Mr. J. P. Lesley of Philadelphia, there are three of these basins, or rather elongated troughs, all included in a few counties at the head of the Schuylkill river, and the north branch of the Susquehanna, and extending in a general east and west direction. Their areas are defined by the outcrop of the uppermost great sandstone formation, a coarse white pebbly conglomerate, which is the immediate floor of the group of shales, sandstones, coal-beds, &c., which constitute the coal formation. A similar rock, called the millstone grit, is its floor in Europe. And in both countries lies beneath this a group of shales or sandstones of a reddish color, well known as the old red sandstone. A margin of this conglomerate and the red shales outside of it, define the coal-fields, as though they were included in a frame. But by the disturbed position of the strata, this framework and the included coal measures are thrown into most irregular forms, and many little detached coal-fields are found as outliers to the larger basins. Including these, in the estimate of the area of each division, the southern or Schuylkill coal-field is found to cover about 184 square miles. The middle coal-field, including at its eastern extremity some 26 small basins, is computed at 115 square miles; and the northern or Wyoming basin, which is not broken up, at 118

square miles. It is not the amount of surface covered by the coal measures, however, that indicates the quantity of coal beneath. This depends upon the number and size of the beds, and the position in which they lie. When highly inclined, as they mostly are in the anthracite region, one after another is brought to the surface, and all are made available. But where the strata are nearly horizontal, the lowest members of the coal formation may cover an extensive region, and yet this may contain hardly a workable coal bed. The anthracite basins present a far greater concentration of beds in the same area than the bituminous coal region. In the former, the interstratified slates have in many instances thinned out, so that adjacent coal-beds are brought nearer together, and a thickness is presented of 50, or even of 70 feet of coal, appearing as one solid mass, though thin parallel seams of slate, the representatives of large beds in other localities, divide it into many layers. By the steep dip of these beds, room is afforded for others parallel to them; and by their flexures, they are repeatedly brought to the surface, so that the largest quantity is exposed within convenient reach. Thus at Mauch Chunk it appeared that the whole mountain was composed of anthracite from one of these enormous accumulations of more than 55 feet in thickness, enfolding the summit. For a long time this has been worked as an open quarry, extending over more than 80 acres; and others of similar character have been opened in the same vicinity; from all of which more than 3,000,000 tons of anthracite had been excavated up to the year 1855. (See COLLEGE.) The following section (Fig. 1) across this coal-field will serve to convey a general idea of the position of the coal-beds, and the effect of the hard sandstones (the dotted strata in the section) in withstanding the denuding action, and forming the crests of the mountains. Fig. 2 is a transverse section of the Schuylkill coal basin at Tamaqua, looking toward the west, first published in Taylor's "Statistics of Coal." Fig. 3 gives a more detailed representation of the mode of occurrence of the anthracite beds in the highly inclined slates and sandstones. It shows also how the coal at its outcrop is bent over and curved down the slope of the hill, presenting in this curved portion the decomposed soft coal, or smut. Fig. 4 is a section across 4 neighboring basins, showing the manner in which they are separated from each other by the lower rocks rising between them and forming anticlinal axes.—In the north-eastern coal basin, there occurs in the neighborhood of Scranton a remarkable concentration



of coal in moderate sized beds, no less than 12 being found in an aggregate thickness of strata of about 700 feet. The whole thickness of these coal-beds is about 74 feet, the largest measuring 14 feet; but the amount of workable coal can hardly be rated at more than 40 feet, some of the beds being too thin to be worked at all, and others furnishing of good coal only a portion of their contents. It is found in this basin a fair estimate, in calculating the available contents of a bed of anthracite, to allow 1,600 tons for every foot thickness to the acre, and then deduct one-fifth for mine waste, pillars left to support the roof, &c.—For one now visiting the anthracite region of Pennsylvania, and witnessing the evidences of permanent prosperity in its numerous thriving towns, its canals and railroads, and the enormous business carried on upon them, it is difficult to realize that this whole region was but half a century back a dense wilderness, rough, and almost impassable to any but the Indian and the hunter. It is not yet a hundred years since the valley of Wyoming was Indian territory; and their title to the region comprising the two other coal basins, was extinguished only in 1749. The northern coal-field was bought of the chiefs of the Six Nations in 1768; and in this the existence of anthracite was first noticed about this time. In 1770, it is recorded that some blacksmiths discovered its properties as a fuel. In 1773, Wilkesbarre was laid out as a borough by a Connecticut association called the Susquehanna land company, and in 1775 a boat load of anthracite was sent down the river to the United States armory at Carlisle. From this time the coal came gradually into use with blacksmiths, gunsmiths, &c. In a pamphlet of Zachariah Cist of Wilkesbarre, published in 1815, are numerous certificates of those who had used it for mechanical purposes previously to this time, and who agree in recommending it as far superior to the Virginia bituminous coal, which they were then accustomed to receive. One gunsmith of Northampton states (Dec. 9, 1814), that he has used the coal for 20 years. Its value at this period was about 90 cts. a bushel. In 1808 it was applied to warming private houses in Wilkesbarre, Judge Fell having contrived grates for this purpose. Anthracite appears to have been noticed in the middle and southern coal-fields at as early a date as in the northern, the maps published previously to 1770 indicating some localities of it, as stated by Prof. S. S. Haldeman, in the recent edition of Taylor's "Statistics of Coal." According to the same authority, the famous mines of Mauch Chunk, on the lofty ridge, which overlooks the valley of the Lehigh, were discovered in 1791, presenting bare and enormous masses of anthracite at the surface. From the commencement of organized operations in 1814, when 20 tons were transported at great cost to Philadelphia, to this day, these mines have been worked as an open quarry. So slowly, however, did this fuel attract public attention in the abun-

dance of the wood of the forests, that up to the year 1820, only 365 tons of it had reached Philadelphia. The first railroad for its transportation was commenced in January, and completed in May, 1827, extending 9½ miles from the Mauch Chunk mines to the Lehigh river. In less than 80 years succeeding, over \$65,000,000 were expended in the construction of 40 or more railroads and canals, by companies and by the state, all these improvements having direct reference to the coal trade. They are shown in the following table, to which properly might be added the New Jersey Central Railroad, 63 miles in length, extending across the state from Elizabethtown to Easton; also the Allentown and Port Clinton road, now in construction, at an estimated cost of \$2,000,000; and the Scranton and Lanesboro' road, connecting the northern basin, by the way of Carbon-dale, with the Erie railroad, the Lackawanna and Western road. Of some of the canals and roads enumerated, only those portions are given which may fairly be estimated as having been constructed for coal purposes.

Names of Railroads and Canals.	Canals. No. of miles.	Railroads. No. of miles.	Total cost.
Lehigh Navigation.....	87		\$4,455,000
Lehigh & Susquehanna Railroad.....	20		1,250,000
Mauch Chunk & Summit Railroads.....	86		881,654
Delaware Div. of the Penn. Canal.....	48		1,734,953
Beaver Meadow R. R. and Branch.....	38		380,000
Hazleton Railroad.....	10		120,000
Buck Mountain Railroad.....	4		40,000
Summit Railroad.....	3		30,000
Delaware and Hudson Canal.....	108	16	3,250,000
Morris Coal Canal.....	102		4,000,000
The Schuylkill Navigation.....	108		5,755,000
Reading and Pottsville Railroad.....	98		19,064,000
Little Schuylkill and Tamaqua R. R.	20		500,000
Mine Hill and Schuylkill Haven R. R.	55		650,000
Danville and Pottsville Railroad (44½ miles unfinished).....	29		650,000
Mount Carbon Railroad.....	7		155,000
Port Carbon Railroad.....	2		120,000
Schuylkill Valley R. R. and Branches.....	25		300,000
Mill Creek Railroad.....	6		120,000
Lykens's Valley Railroad.....	16		200,000
Wiconisco Canal.....	12		270,000
Swatara Railroad.....	4		30,000
North Branch Canal.....	168		2,790,212
Union Canal and Pine Grove Branch.....	90		1,000,000
Dauphin Company's Railroad.....	59		1,500,000
Baltimore and Susquehanna Railroad.....	60		1,000,000
Susquehanna Tidewater Canal.....	45		1,000,000
York and Cumberland Railroad.....	26		600,000
Mine Hill Railroad.....	14		294,117
Nesquehoning Railroad.....	5		50,000
Boom Run Railway.....	6		40,000
Delaware, Lackawanna & West. R. R.	117		2,955,000
Pennsylvania Coal Co. Railroad.....	52		2,745,500
Railroads by Individuals.....	120		150,000
Underground Railroads.....	200		75,000
Total.....	758	1,080	\$67,997,500

The progress of the trade and the production of the different coal districts is exhibited in the following table. In the second column may be observed the extraordinary amount of tonnage brought down the Schuylkill canal and the Reading railroad for shipment from Richmond, 5 miles above Philadelphia; and the magnitude and importance of the trade cannot be more

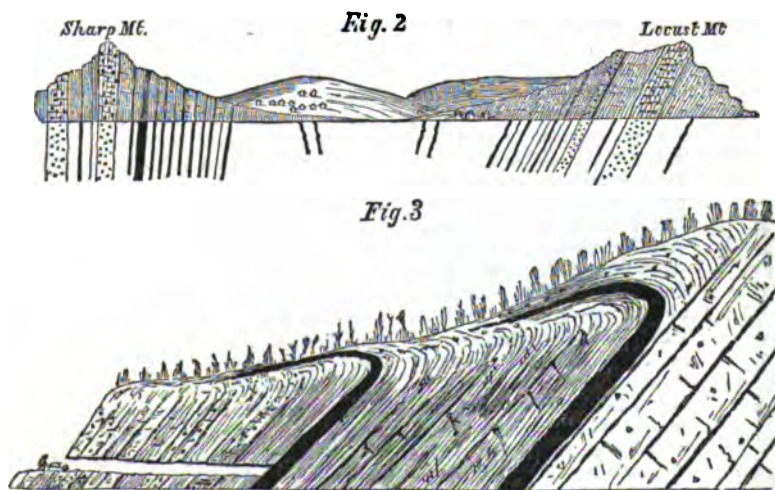
forcibly shown than by the statement of the fact, that the coastwise tonnage from this out-let alone is greater than the whole foreign tonnage of the port of New York.

Years.	Schuykill.	Lehigh.	Lackawanna.	Pittston.	Other Regions.	Aggregate.	Annual Increase.	Aggregate in each period of 5 years.	Av. annual delivery for each period.	Av. annual increase each period over the preceding.
1820		865				865				
1821		1,078				1,078				
1822		2,240				2,240				
1823		5,828				5,828				
1824		9,541				9,541		19,042	2,809	
1825	6,500	28,898				34,898	25,852			
1826	16,767	81,380				48,047	18,154			
1827	31,880	28,074				63,434	15,887			
1828	47,284	80,393				77,516	14,082			
1829	79,978	35,110	7,000			112,088	34,567	885,978	67,194	12,488
1830	89,984	41,750	48,000			174,734	62,651			
1831	61,554	40,966	54,000			176,520	2,086			
1832	209,271	70,000	84,600			363,871	187,051			
1833	252,971	128,000	111,777			487,748	123,877			
1834	226,392	106,244	48,700			376,686	decrease	1,579,809	815,961	49,758
1835	339,508	181,250	90,000			560,758	184,122			
1836	432,045	148,211	108,861			682,428	121,670			
1837	523,152	228,908	115,887			861,476	199,048			
1838	438,875	218,615	78,907			739,298	decrease			
1839	442,008	221,025	122,800		11,980	819,227	80,084	2,668,269	736,646	84,189
1840	452,391	226,818	145,470		15,505	865,414	46,087			
1841	584,692	148,087	192,270		21,468	958,999	93,485			
1842	540,692	272,546	205,258		57,246	1,108,001	149,102			
1843	677,395	267,798	297,605		68,000	1,263,539	155,538			
1844	839,684	277,009	251,005		127,988	1,631,669	268,180	5,897,559	1,165,504	85,769
1845	1,088,796	429,458	278,425		188,401	2,023,052	291,788			
1846	1,287,009	528,008	330,000		205,075	2,348,092	325,040			
1847	1,582,874	648,978	388,908		299,502	2,982,808	638,317			
1848	1,652,885	690,747	487,500		256,627	3,089,238	106,929			
1849	1,605,126	801,246	454,240		308,786	3,242,541	153,408	12,651,189	2,736,226	814,144
1850	1,712,007	729,692	482,889	111,014	276,389	3,254,821	11,780			
1851	2,184,240	989,296	473,478	816,017	415,099	4,877,130	1,722,309			
1852	2,452,096	1,114,096	497,889	496,164	439,343	4,925,695	548,565			
1853	2,470,948	1,090,544	494,397	512,659	556,018	5,114,491	188,796			
1854	2,895,908	1,246,418	488,406	496,648	676,689	5,753,369	638,878	22,425,006	4,685,001	859,755
1855	3,480,768	1,284,114	505,460	504,908	767,156	6,552,301	798,932			
1856	3,833,655	1,251,970	*499,650	†612,500	‡958,567	6,751,542	199,241			

* Delaware and Hudson Company.

† Pennsylvania Coal Company.

‡ N. Branch Canal, 510,681; Delaware, Lackawanna & Western Railway Company, 305,580; and Shamokin, 187,406.



The semi-anthracite districts of Lykens valley, Short Mountain, Dauphin, Trevorton, and Broad Top, produced, in addition to the above, 218,038 tons, against 118,221 tons in 1855.—The cost of mining and delivering anthracite in cars at the mouth of the mines, varies at the

different localities with the size of the beds, their situation as regards easy drainage, the relative proportion of coarse and fine coal, and the scale upon which the operations are conducted. The lowest estimate, including in this the cost of keeping the mine-cars and machin-

Island coal is considered with reference to convenience of supplying the demand for fuel, most persons will be ready to concur in the observation of President Hitchcock, who thus expresses the opinion, which every scientific man, who has given attention to this subject, appears also to have arrived at, "that ere long the anthracite of Rhode Island will be considered by posterity, if not by the present generation, as a treasure of great value." The geological position of the Rhode Island anthracite has long been uncertain, the strata of slates and sandstones being greatly metamorphosed by their proximity to the granitic rocks. The fossil plants, however, are similar to those found in the true coal formation, and it is now the generally received opinion of geologists, that the group is identical with it—the intervening formations between it and the granite being all wanting.—In Virginia, anthracite mines have been opened within a few years past in Montgomery, Pulaski, and Wythe counties, and also along the same range of mountains in the western part of Augusta county. One, or at the most two beds, are met with, ranging along the southern side of the long parallel ridges called the Brushy mountains, and sometimes distinguished by the names of the Little Clinch, the Little Walker, and the Little Cove mountains. In Montgomery county, the coal-beds are met with in Price's mountain, which extends from New river about 7 miles toward the N. E. This ridge is about 2 miles wide, and the strata lie in it, arranged in anticlinal form, dipping on each side toward the limestone, which forms the two valleys. Against this limestone formation, the strata of slates, sandstones, and coal abut as against a solid wall, and the coal basin is consequently limited by it on each side. It is rare in the Appalachian range to meet with the strata thus unconformably disposed; but this region is peculiar for the extraordinary displacements of the surface, and consequent disarrangement of the order, in which the same groups of rock elsewhere succeed each other. The limestone, which is here in contact with the coal, is the lowest of the great calcareous groups, and on the range of these formations further north, is always separated from the coal by other strata of many thousand feet aggregate thickness. The coal-beds also are in a very unusual group of rocks, not those which constitute the true coal formation, but in a series of gray sandstones, which occur below the great conglomerate bed, that has already been spoken of as the floor of the coal measures. These irregularities are unfavorable for the existence of many or large beds, or of any, indeed, in good condition for working. It appears probable, from the researches of Mr. J. P. Lesley, an account of which is published in the 7th annual report of the Virginia and Tennessee railroad company, that not more than one workable bed will ever be met with; and this is liable to be greatly disturbed by faults, and reduced to the condition of fine

coal by the shaking which the whole mountains have experienced. Such is indeed its condition along much of its range through Pulaski and Smythe counties, the coal being shovelled out of some of the beds like sand. In Brush mountain, along the north-western line of Montgomery county, and in Price's mountain, 6 or 7 miles south-east of this, some very good coal is mined; that of the former locality being free-burning semi-bituminous coal, and that of the latter a very pure anthracite, of which an analysis is given in the table in the first part of this article. The specimen was from mines lately opened on Strouble's Run, which were visited by the writer in Jan. 1857. From the proximity of these mines to the Virginia and Tennessee railroad, which is only a mile and a half distant, they are likely to assume some importance. The neighboring region abounds in the best quality of hematite iron ore, which ought to create a large local demand for fuel; and the great salt works near the western corner of Smythe county already consume large quantities of wood at a greater cost, probably, than the mineral coal might be afforded at.

ANTHROPOLITES (Gr. *ανθρωπος*, a man, and *λιθος*, a stone), fossil remains of man. The frequently reputed fossils of this character generally prove to have belonged to other animals; but in the rocks of the present geological period, such as the limestones, which are in process of formation on the coast of the West India islands, it has happened that human skeletons have become embedded together with the remains of shell-fish common to that region. A portion of a skeleton embedded in the limestone from the coast of Guadeloupe is deposited in the British museum, and the corresponding part of the same skeleton is in the collection of the medical college of Charleston, S. C.; another similar specimen is in the museum of the *Jardin des Plantes* in Paris.

ANTHROPOLOGY (Gr. *ανθρωπος*, man, and *λογος*, doctrine), the science of man, or of human nature, in contrast with animal nature and instinct. In a physical point of view, man evidently belongs to the animal kingdom of our globe, and to the vertebrate type of organic conformation. There are several distinct classes of vertebrata; such as birds, reptiles, fishes, and mammalia. Man belongs to the class mammalia.—There are numerous subdivisions of this class into different families, genera, species, and varieties, but no satisfactory method of classification has hitherto been devised to form distinctive groups of species in each order, or define the limitations of variety in each particular species; and as with animals, so with man. It is admitted that the whole human race belong to one family and one species, but the number of varieties in this one species remains undetermined; some writers making 3 distinctions, others 5, and others again 15, or more, according to the point of view of the author, who may wish to notice only very marked distinctions, or pursue the separation into more minute

analysis of varied feature, form, and character. In most respects, man differs widely from all types of the animal; but one exception breaks the rule unpleasantly; the ape, which evidently forms a link between the monkey and man, is too like the latter to be utterly denied as an approximation to the "human form divine." This propinquity of outward form excites a feeling of aversion; but that which God has created in the realms of nature must be accordant with divine wisdom, and therefore worthy of man's admiration and the reverence of human reason.—In a natural theory of classification, broad distinctions are first made and then minute divisions. The class mammalia may be subdivided into the following series of generic types: The porcine, the cervine, the bovine, the equine, the ursine, the canine, the feline, the hand-ed tribes, and certain mammalian tribes inhabiting the ocean, such as whales, seals, and the like. These are very broad distinctions, to which may be added the ovine tribes, not very far removed from the antelope and deer tribes; the rodent tribes, not far removed in some of their characteristics from the porcine tribes; the marsupialia and hibernating tribes, near the ursine; the weasel and ichneumon tribes, near the feline; the wolverine or glutton, not very distant from the canine. This gives 14 broad distinctions in the mammalian class, and each of these admits of numerous subdivisions, to distinguish genera and species in each order. The elephant, rhinoceros, and hippopotamus we class as genera belonging to the porcine order, for though the pig does not aspire to so much honor as to claim relationship with the majestic elephant, he is as much allied to him as the monkey to man. The rodent types we class as a distinct order, between the porcine and the cervine; the guinea-pig being really a rodent, and the elephant himself being monarch of the types in which incisor teeth and the proboscis are supremely characteristic of peculiar development. We need not dwell on other types, but come at once to the bimana and the quadrumana. We may, however, state that the hyena, the wolf, the fox, and the dog are classed in the canine order here; and other species usually placed too far apart, are brought by means of remote affinity, or natural osculation, within a common order of limitation in our definitions. The man, the ape, the monkey, and the lemur, form a group of types, with many points in common, as compared with other forms of physical organism. In 2 of the quadrumana types, *i. e.* monkeys and lemurs, there are numerous species and varieties; in the ape tribe, few; and in the human, or bimana, only one. Diversities of color, feature, form, and stature, are, however, numerous in this one family or species, and these are so distinct and different in some respects, as to suggest to certain minds the idea of a different origin for each variety. The Chinese and Mongolian tribes differ so widely from the South Sea Islanders and the Malays, in form and feature;

and these again from the Australian races and the beardless red Indians of America; and all these from the negro tribes of western and of southern Africa, that no amount of ingenuity can satisfy the senses of their common origin and subsequent degeneration. The Indo-Germanic or Caucasian tribes, again, are not less different from the foregoing types, than these are from each other; and yet, so many points are common to all races of the human family, that much may be advanced in favor of a common origin and subsequent divarication, caused by difference of climate, habita, and religious culture.—Blumenbach divides the human species into 5 varieties, Caucasian, Mongolian, Ethiopian, American, Malay. The Caucasian he describes as having a white skin, either with a fair rosy tint, or inclining to brown; red cheeks, hair dark, or of the various lighter hues, copious, soft, and generally curly or waving; the iris dark in those with brown skin, light in the fair or rosy complexion; large cranium, with small face; the upper and anterior regions of the head well developed, with the face falling perpendicularly under it; the face oval and straight, with distinct features, expanded forehead, narrow and rather aquiline nose; mouth small; front teeth of both jaws perpendicular; lips slightly everted or turned out, the lower lip more than the upper; the chin full and rounded; the moral feelings and intellectual powers most energetic and susceptible of the highest culture and development. This variety includes all the ancient and modern Europeans (except the Finns); the former and present inhabitants of Western Asia as far as the river Oby, the Caspian sea, and the Ganges; *i. e.* Assyrians, Medes, Chaldeans, Sarmatians, Scythians, and Parthians, the Philistines, Jews, Phœnicians, and the inhabitants of Syria generally; the Tartars properly so called; the tribes now occupying the chain of the Caucasus; Georgians, Circassians, Armenians, Mingrelians, Turks, Arabians, Persians, Afghans, and Hindoos of high caste; the Egyptians, Abyssinians, Guanches, and northern Africans. The second or Mongolian variety are characterized by black eyes and an olive-colored skin, in many cases very light. Black, straight, strong, thinly furnished hair; little or no beard; head of a square form with a small and low forehead; broad and flattened face with the features running together; the glabella flat and very broad; nose small and flat; rounded cheeks, projecting externally; narrow and linear aperture of the eyelids; eyes placed very obliquely; slight projection of the chin; thick lips; large ears; stature, particularly in the countries near the north pole, inferior to that of Europeans. It includes the tribes of central and northern Asia, as the Mongols, Calmucks, and Buriats; the Mantchoos, Daurians, Tungooses, and Coreans; the Samofedes, Yukagers, Koriaks, Tchouktchees, and Kamtchatdales; the Chinese and the Japanese, the inhabitants of Tibet and Bootan, of Tonquin, Cochinchina, Ava, Pegu, Cambodia,

Laos, and Siam; the Finns, the Laplanders, and Esquimaux. The third or Ethiopian variety is thus described: skin and eyes black; hair black and woolly; skull compressed laterally and elongated toward the front; forehead low, narrow, and slanting; cheek-bones prominent; jaws narrow and projecting; upper front teeth oblique; chin receding; the eyes prominent; nose broad, thick, flat, and confused with the external jaw; the lips thick, particularly the upper one. All the natives of Africa belong to this variety, except those of the north, which are classed with the Caucasian races. The fourth or American variety are described as having the skin dark and more or less of a red tint; strong, straight black hair; beard scanty; countenance and form of skull not unlike the Mongolian type. The forehead low, eyes deep, face broad, particularly across the cheeks, but not so flattened as in the Mongolian races; mouth large, and lips rather thick. This variety includes all the aboriginal Americans, except the Esquimaux. The fifth or Malay variety is distinguished by a skin of brown color, from a light tawny to a deep brown; hair black, abundant, and more or less curly; head rather narrow; bones of the face large and prominent; nose full and broad toward the apex; mouth large. In this variety are included the inhabitants of Malacca, Sumatra, Java, Borneo, Celebes, and the adjacent Asiatic isles; of the Molucca, Ladrone, Philippina, Marian, and Caroline groups; of New Holland, New Guinea, New Zealand, Van Diemen's Land, and of all the South sea islands.—Ouvier makes only 8 principal divisions; i. e. the Caucasian, the Mongolian, and the Ethiopian; remaining doubtful in regard to the distinct characteristics of the Malay and the American varieties. Dr. Prichard divides the species into 7 principal varieties; i. e. the Iranians, who, in the form of the skull and in other physical characters, resemble Europeans, or the Caucasian variety; the Turanians, who are nearly the same with the Mongolians of other writers; the aboriginal Americans, except the Esquimaux and some others resembling them; the Hottentots and Bushmen; the Negroes; the Papuas or woolly-haired nations of Polynesia; the Alfourou, and Australian races. These distinctions are made with reference to differences of form and feature, color, stature, &c. Varieties of form are mainly referable to differences in the structure and proportions of the skeleton, and particularly in the varied forms of the skull. Dr. Prichard, in his "Researches," first makes 8 principal divisions in regard to the peculiar forms of the skull: the symmetrical or oval form; the narrow and elongated or prognathous skull; the broad and square fronted or pyramidal skull. The symmetrical or oval form includes all the Indo-Atlantic or Iranian nations, comprising the countries from the Himalaya mountains to the Indian ocean, including the whole of Hindostan and the Decan, as well as Persia and Arabia; and from

the Ganges to the shores of the Atlantic, including the north of Africa and nearly the whole of Europe. In this variety, the head is rounded and more even than in the others; the forehead more expanded; the upper maxillary bones and zygomatic arches are formed to give the face an oval shape, being also nearly on a plane with the forehead and cheek-bones, and does not project toward the lower part. The cheek-bones neither project outward and laterally nor forward. The alveolar process of the upper jaw is well rounded, and slightly curved vertically, giving the teeth a perpendicular direction.—The narrow and elongated or prognathous skull is found in the negroes, the Papuas, Alfoursous, Australians, New Zealanders, and other neighboring Oceanic nations; but the most marked specimens occur in the negroes of the Gold Coast. These skulls give the idea of lateral compression and elongation. The cheek-bones project forward and not outward laterally. The upper jaw is lengthened and projects forward, giving a similar projection to the alveolar ridge and the teeth, and thus diminishing the facial angle.—The broad, square-faced pyramidal skull belongs to the Turanian or northern Asiatic nations, Samoiedes, Yukagers, Koriacs, Kamtchatdales, Tchoukchees, Tungusians, Chinese, Indo-Chinese, Tangutians, and Japanese, part of the Tartar race, the Finnish race in Europe, the Esquimaux, the aboriginal Americans, and the Hottentots. The Mongols form a fair average of this type, and the Esquimaux the most exaggerated specimen. Its most striking characteristic is the lateral outward projection of the zygomata, and this is so considerable that lines drawn from each and touching the sides of the frontal bone, will meet a very little way above the apex of the forehead. The cheek-bones project from under the middle of the orbit, and turn backward in a large arch or curve. The orbits are large and deep; the upper part of the face remarkably flat; the nasal bones and the space between the eye-brows being nearly on the same plane with the cheek-bones.—These varieties are not always very distinctly marked. There are many individual cases of negroes remarkable for the beauty and quasi-European cast of their features, and many specimens of European heads in which the narrowness of the skull, the lowness of the forehead, and the prominence of the jaws, approach the negro type, while others resemble strongly the broad and flat-faced Tartars or Chinese.—Professor Weber has arranged the various shapes of the human pelvis in 4 classes; the oval, the round, the square, and the cuneiform or oblong; and observes that, although the oval is the most general form in Europeans, the round in the Americans, the square in the Mongolians, and the oblong in the Africans, yet specimens of each of these forms may be found in all the different races.—Other points of conformation differ as well as the skull and the pelvis, in the principal varieties of the

species. The chest of the negro is generally more expanded than that of the European, the sternum more arched, the ribs larger and more roundly curved. The forearm, measured in proportion to the upper arm, and to the height of the body, is longer in the negro race than in the European. The knees appear ill-shaped, the bones of the leg bend out from beneath them, and turn the feet outward awkwardly, whence they have been called "splay-footed." But the tibia and fibula are more convex than in the Caucasian races; the feet are flat; instead of being arched, the os calcis forms nearly a straight line with the rest of the tarsus; the calves of the leg are short and highly situated, near the hams; the hands generally narrow and the fingers long.—Some writers have supposed the lowest type of negro to form a sort of intermediate grade between the European and the ape; but there is no important feature in which the difference between the most degraded human type and the highest ape is not very much greater than that which separates the lowest negro from the highest European. The characters of form which the lowest class of negroes present are, no doubt, more like those of the ape than those of Europeans are; still, the approximation is but slight, and a vast space is left between them.—Considerable difference occurs in the average stature of the different races, as well as in feature, form, and color. In the temperate climates of Europe the most prevailing heights vary between 5 and 6 feet for males, and somewhat less for females. Giants and dwarfs, of course, are not included in this average, as they are very rare, and equally exceptional in every race. In northern Europe the average height is generally nearer 6 feet than 5, while in southern Europe the opposite prevails. Still greater varieties of stature occur amongst the aboriginal races of America. The Peruvians, the nations of Terra del Fuego and of Nootka Sound, the Esquimaux and the Chaymas, are all described by travellers as very diminutive, while the Paraguays, Caribbees, Cherokees, and the natives of the regions immediately north of Canada, are said to be much above the average height of Europeans. The Patagonians are also generally very tall, commonly 6 feet, and often more. The stature of the African race appears to maintain about the same average as that of Europeans. The Hottentots are below the general size, and the Bushmen are still more diminutive, $4\frac{1}{2}$ feet being the average height of the men, and 4 feet that of the women. The Cafres, on the other hand, the neighboring tribe to the Hottentots, are remarkable for height and strength. The people of the north of Asia and those of the north of Europe near the pole, Laplanders, and Samoïedes, are generally shorter than those of lower latitudes and more temperate climates, while the Chinese and Japanese, who resemble them in form and feature, are about the same in stature as the Europeans.—The specific characteristics of the

human organism, compared with that of animals, are found in the peculiar adaptations of all the parts to station and action in the erect attitude. The position of the face immediately beneath the brain, with its front nearly in the same plane as the forehead, is peculiar to man, for the crania of the chimpanzee and orang-outang, which approach nearest to that of man, are altogether posterior to the face, and not above it. This peculiarity of the human head and face is also adapted specially to the erect attitude, in which position the plane of the orbits is nearly horizontal, the cavities of the nose in the best direction for inhaling odors proceeding from below or from around.—The vertebral column, in man, though not literally straight, has its curves so nicely balanced, that when the body is erect, a vertical line drawn from its summit would fall exactly on the centre of its base. It increases also in size and strength from above downward, and the lumbar portion, beside being very strong, is also of considerable length. The lumbar vertebrae in man are 5 in number, while in the apes there are but 4.—The base of the human vertebral column is placed on a sacrum of greater proportional breadth than that of any animal. The sacrum is remarkably arched forward, and fixed between two widely expanded haunch bones, forming the lateral walls below of a very broad pelvis. The pelvis of every other species is very different from the human, being always longer and narrower, with a smaller space between the iliac bones and lowest ribs, the sacrum lengthened and reduced in width, the alae of the ilia much less expanded, and the whole pelvis, instead of forming an angle with the vertebral column, as in man, is almost in the same line with it.—The lower extremities of man are remarkable for their length, which is proportionally greater than that of any other mammal, except the kangaroo. The human femur is distinguished by its great length, by the obliquity and length of its neck, and by its being directed somewhat obliquely inward toward that of the opposite side, so as to bring the knees more directly under the pelvis. Owing to this great comparative length of the human femur, the arms of a man only extend to the middle of the thigh, while those of the chimpanzee reach to the level of the knees, and those of the orang-outang to the ancles.—The human foot, in proportion to the size of the whole body, is larger, broader, and stronger than that of any other mammal. In the erect position it is at right angles with the leg, and is in contact with the ground at both ends. The sole of the foot is concave, and the weight of the body falls on the summit of an arch, of which the astragalus, supported below by a very strong ligament, represents the keystone, the principal points of support being the large and arched os calcis, and the anterior extremities of the metatarsal bones. The strength and size of the foot enable man alone, of all the mammalia, to stand upon one leg. The natural

contact of the os calcis with the ground, and its arched form, are also peculiar to man. Apes have the os calcis small, straight, and more or less raised from the ground, which, when standing, they touch only with the outer side of the rest of the foot, while in animals more remote from man, the angle which the os calcis forms with the tibia is still more acute, and the foot being more narrow and elongated, the extremities of the toes only come in contact with the ground. The foot of the monkey is further distinguished from that of man by the great length of four of its toes, and the separation of the most internal from the rest, in such a manner that it can, when necessary, be opposed to them in action, like a thumb. This toe corresponds to the great toe in position, but instead of being the largest of the five, as in man, it is the smallest of the monkey's toes, or rather of the fingers of the posterior hands, for monkeys are four-handed, all their extremities being alike adapted for prehension, and for clinging to the branches of trees.—Man alone is two-handed. "That which constitutes the hand, properly so called," says Cuvier (*Regne Animal*, i. p. 78), "is the faculty of opposing the thumb to the other fingers to seize the most minute objects; and this faculty is carried to the highest perfection in man, in whom the whole anterior extremity is free, and can be used in prehension." Hands thus defined occur only in man, and in the ape and monkey tribes, one forming a bimanous order, containing only one genus and one species, man; the other a quadrumanous order, containing three genera, apes, monkeys, lemurs, and each of these again comprising few or many different species.—With one exception (in the fossil genus *anoplotherium*), man differs from animals by the equality of the length of all his teeth, and by their equally close proximity to one another in the jaw. Even the chimpanzee and orang-outang have the canine teeth longer than the others, and an interval in the line of teeth in each side of each jaw, to receive the prolonged canine teeth of the opposite jaw.—The physiological characteristics of the human organism are hardly less remarkable than the anatomical structure and proportions. Man can live on almost any part of the globe, and thrive in the extremes of climate and of temperature. The Greenlanders and Esquimaux have reached between 70° and 80° of N. lat., while the red men of America and the negro of Africa live under the equator; and Europeans, even, accustomed to a temperate climate, can habituate their frames to either of the extremes of cold or heat, and have repeatedly been known to do so with considerable ease. In accordance with this adaptation to extremes of climate, man can live on almost every variety of food. In the polar regions he subsists mainly on animal food, and that of a fatty kind; in the torrid zone, almost exclusively on vegetable diet and farinaceous food; while in the temperate zones he is omnivorous,

and lives habitually on a mixed diet. He also subsists with equal facility, within given limits, under various degrees of atmospheric pressure. The valleys and the elevated plains of table-lands in South America, some of which are 10,000 feet above the level of the sea, are both inhabited by man, the barometer standing in the valleys at 30, and in the elevated plains at only 20 inches. The apes are unlike man in this capacity of living anywhere upon the globe. The chimpanzee and orang-outang are confined to the islands of Borneo and Sumatra, the coasts of Guinea, and some other parts of Africa, and there even they are few in number. It requires immense precaution to preserve them on the journey, when removed from their own native climate to a colder region; and with all the care that human art can suggest and bestow, they soon become diseased, linger a few months, and die.—Man is further remarkable for his slow growth, and the length of time consumed in helpless infancy and tender youth. The greatest age to which the ape is known to attain is 30, while man lives frequently three times as long, and sometimes more. However wide the physical differences between man and other types of the mammalia may be, the moral and the mental characteristics of his nature place him still more distant from the nature of the animal. Blumenbach describes man, as being "erect, two-handed, unarmed, rational, endowed with speech; a prominent chin; 4 incisor teeth above, and 4 below; all the teeth equally approximated; the canine teeth of the same length as the others; the lower incisors erect." This is rather zoological in style and character. Dr. Prichard observes that "the sentiments, feelings, sympathies, internal consciousness, and mind, with the habits of life and action thence resulting, are the real characteristics of humanity." This description is less zoological in color and outline, but still it seems but meagre for the portrait of a man, or an outline of his nature.—And here we come to the main question, of anthropology, or the science of human nature. What constitutes a man? and what distinguishes a human creature from any other animal, except the outward form? Religious culture, and the principle of human reason, progressing in development to perceive and to revere the divine. A man is human only in so much as he is conscious of a divine principle within; just and noble in his personality; willing to cooperate with God in elevating man from the idolatry of self, and the slavery of animal ferocity, to a consciousness of human duty and divine humility. Self, is the narrow, limited, animal development of nature; unself, the consciousness of infinite existence, the metamorphosis from animal to human. By this transformation, man awakens from the sleep of death, the grave of dead materiality, into the consciousness of spiritual life and understanding. In lieu of being proud of worldly cunning, and power to spoliates his fellow-man

(as a lion gifted with the energy and means to conquer and appropriate the flesh and blood of weaker animals), the human being, metamorphosed by religious culture, leaves the world of narrow self, the nature of the brute, and assumes the universal self, or the personal unself, at one with the divine; lives in a new world of thought and feeling, which is truly human. A knowledge of these transformations and developments constitutes the science of man, as distinguished from that of animal nature, anthropology in contradistinction from zoology, ethnology, and ordinary mental philosophy. And here we may observe, that, as the inward feelings give perpetual play to the features and the gestures of the body, so that the physiognomy and carriage, the outward bearing and the manners of a man, reveal, to some extent, the education and the culture of the mind, we may easily conceive the possibility of ages of peculiar culture in a race, or of perpetual inculture and degeneration, in some tribes of the great family of man, producing such effects of physical deviation from the perfect or ideal "human form divine" that many races now resemble apes as much as men, from the constant play of animal propensities alone, within their poor, degraded souls. Not that all races physically ugly and deformed are really more hideous in their moral nature than some other races less distorted from the physical ideal standard; but they are generally weaker in their powers and their instincts, as the mangy dog or the hyena are inferior in form and energy to the ferocious bloodhound; or the half-starved cat to the sleek tiger or the lion. Unable to do justice in a few short pages to the elevated science of human nature, as compared with that of animals, we give a few broad outlines to suggest to other minds the vast proportions of the subject, properly defined as anthropology. The outward form, as we have seen above, differs in its leading features from all types of the animal, although it much resembles them in many points, and more especially the apes; but human nature differs widely from the animal, in being able to progress from infantine instinctual limitation to adult human consciousness, perceiving infinite wisdom in creation and infinite love in the Creator, and aspiring to commune with higher beings, and advance in love and wisdom to eternity. In human nature there are three orders of instinct and emotion, capable of infinite development, unknown to animals, and little understood by man himself when undeveloped: these are the religious instincts and aspirations; the social and political instincts and sentiments; and the natural instincts and feelings, or the love of nature, properly so called. These impel man to cultivate religion, politics, philosophy, and science, in all their various phases and developments. Animals have no impulses of this kind, no instincts of so high an order. True, they have the germs of some of these, as we may see in certain tribes of birds and beasts

gregariously organized for plunder or for self-protection; as wolves and wild dogs hunt in troops; and certain wary birds, which live in flocks, place sentinels or outposts at a distance to warn them of approaching danger, while the mass is occupied in feeding or in seeking food. These germs, however, of gregarious policy and art, remain forever in the narrow sphere of simple instinct, and never grow into a science. The principle of reason, like the passions and the instincts of the human soul, is infinite in essence or universal and progressive in development, while both the reasoning and the instinctive powers are limited and stationary in all the lower animals. And yet animals have finite germs of all, or nearly all the emotions and the instincts of the human soul. They have slight powers of observation and of reason, so as to be more or less susceptible of education or of training. The limits of development, however, are restricted within narrow bounds, in all the organic beings of our globe, with one exception, and that one is man. He transcends every law of ordinary limitation, and progresses naturally from the finite toward the infinite, in every sphere of thought and aspiration, will and understanding, intuition, spiritual sympathy, and conscious harmony with nature and with God, the infinite Creator.—Animals have certain instincts of construction, as the beaver and the bee, but man is a creator, in the sphere of art and mechanism, always generating new conceptions and new forms; creating as it were a world of poetry and art, mechanical contrivances, and social institutions, as instruments of beauty and convenience, order and economy, for the advancement of the race toward higher destiny, in the scale of universally ascending life and consciousness amongst created beings. Anthropology is therefore a progressive science, which can only be developed by those who precede their time and generation in the regular unfolding of the human faculties and powers; for an undeveloped man or woman is unconscious of the latent powers within, as much so as the child of 8 years old, who has no conception of the adult powers of thought and life developed all around him. The physical organism of man is just beginning to be understood in its main functions and minute structure by anatomists and physiologists alone; the public, as yet, have hardly any knowledge of the human body, or of any natural physical organism. The human mind is hardly known at all, in any systematic manner worthy of the name of science, parallel with the anatomy and physiology of the physical organism; although the Germans and other distinguished European thinkers, not to mention men of equal eminence in the United States, have spent much time and thought in analyzing the operations of the mind and its constituent faculties of thought. The feelings and the sentiments are hardly better known or scientifically analyzed than the mental faculties; and though innumerable volumes have

been written upon ethics and the moral conscience of mankind, the faculties and powers and progressive evolution of human conscience as a principle or special kind of force in human nature, are less known or scientifically analyzed than are the mental faculties. This is natural enough in the present age of the world; for, though the mental faculties have been much developed in the race, and exercised in many spheres of thought, the conscience has been lying buried or asleep for ages, hardly waking up to consciousness at all in the vast majority of undeveloped human beings, even in the most advanced parts of Christendom; and this, notwithstanding the divine humanity of Christ, perpetually held up as a model of unfoldment in the highest sphere of reason, intuition, conscience, will, and understanding. To the great majority of men, little or nothing is known of anthropology or human nature. To a few, the structure and the functions of the body are familiar; those of the mind are less understood; those of the feelings and affections, less still; those of the conscience proper, or the inner and the nobler essence, very little, or to very few, and that but superficially. The impulses and the instincts of human nature, are hardly less developed in the race than conscience, intellect, and reason. The instinct and the love of religion are either undeveloped as in heathen nations and ungodly multitudes in Christendom, or they are feeble and irascible, as in fanatical sectarians and superstitious maniacs. Of course there are exceptions to all general statements of this nature; but exceptions always prove the rules to which they form a contrast.—The instincts and the impulses of social and political organization are no doubt rudely exhibited in some nations and some classes, but we need hardly dwell on facts or history, to show how coarsely human nature is developed in this sphere of life; how nearly it approximates to animality in many of the leading features of political antagonism and social degradation. The love of nature, or the impulses and instincts which impel man to cultivate philosophy and science, and otherwise commune with and enjoy the works of the creation, are developed in a few more highly gifted specimens of the race; but, in the vast majority, these innate powers and capacities lie almost dormant, or unfold but in the low degrees of sensuality and animality.—What human nature is, and what it may become, are manifestly two distinct branches of anthropology. The latter will be always more or less imperfectly known; for, as man unfolds his powers, he perceives that more remains yet undeveloped than is actually evolved. The few in every age, who are developed more than their contemporaries, give a glimpse of what the race may next attain to; and this spiral ladder of progression constantly reveals new powers in human nature, as the race advances from the brute or infant state toward infinite perfection.

ANTHROPOMORPHITES (Gr. *ανθρωπος*,

man, *μορφή*, shape), those who believed that God possesses a human form. Anthropomorphism in Christianity, has its origin in the attempt to apply a literal method to the interpretation of Scripture. Of this method Origen, in his early history, is an illustrious and, perhaps, the first example. Origen, however, deserted the literal method without arriving at anthropomorphic results. These were reserved for Audius, a Syrian layman (840), who separated from the church, and established congregations in Scythia. He taught that God essentially exists in human form—inculcated the observance of the Jewish passover—and opposed the authority of the clergy. For the two latter teachings, in connection with his anthropomorphism, Audius and his congregations were excommunicated from the church. They flourished only about a century. In the 10th century, anthropomorphism was revived, but did not attain any prominence as a doctrine. The most remarkable and consistently developed exhibition of this doctrine is to be found among the Mormons of the present day. Anthropomorphism consists, philosophically, in subjecting God to the conditions of time and space, and so assigning to him a finite personality. As such, therefore, it has, more or less, an existence in the infancy of all religions, and in the earlier religious conceptions of every individual.

ANTHROPOPHAGI (Gr. *ανθρωπος*, man, *φαγε*, to eat), man-eaters, a term which was used until the discovery of America, after which the word cannibals came into general use.

ANTIBACCHIUs, in ancient poetry, a foot made up of 8 syllables, the first two long, and the final one short, like *ἀμβρά*.

ANTIBES, a well-fortified town of France, department of the Var, situated 10 miles S. E. of Grasse, on the east side of a peninsula in the Mediterranean. It is a very ancient city, having been founded under the name Antipolis by the Greeks in 840 B. C., and was also a Roman military station. It was invaded, after the fall of the empire, by the barbarians, and was destroyed by the Saracens. In 1746, it successfully withstood the attacks of the English, Imperialists, and Piedmontese, and in 1815, it was the only military station of which the garrison refused to join Napoleon on his return from Elba. Pop. 6,500, mostly employed in fishing, curing fish, and trading in dried fruits and oil.

ANTICAGLIA, the name given by the Italians to small remains of Greek and Roman antiquity, such as coins, cut stones, household furniture, etc. The term is now used to designate also similar antiques of other nations.

ANTICHRIST. From the earliest ages of the Christian church, there has been a belief that some great personage or institution was to arise at some future time, or had arisen in past time, to oppose the kingdom of Christ, and at least temporarily triumph over it. How, or from what source, such an idea originated, it is, perhaps, difficult to tell. Some writers attribute to it an anti-Messianic origin, others to

the New Testament Scriptures. In respect to this latter opinion, it is to be observed that the epistle of John alone makes any mention of Antichrist, and that John scarcely gives countenance to the notion of a single future incarnation as an Antichrist, but affirms that there are already "many Antichrists," and says that "every spirit that confesseth not that Jesus Christ is come in the flesh," is Antichrist, "and even now it is already in the world." By some writers Napoleon has been thought to be Antichrist. At the time of the reformation, the Protestant and Roman churches reciprocally criminated each other as Antichrist. Commentators have generally considered the 12th and 18th chapters of the Apocalypse as emblematic descriptions of Antichrist.—The current opinion in the Roman Catholic church, in accordance with the general doctrine of the Fathers, is, that Antichrist is an individual who will pretend to be the true Messiah, and be generally acknowledged as such throughout the earth, during the last epoch of the existence of this world. It is generally supposed that he will be a Jew, of the tribe of Dan, the son of an impure woman, pretending to great sanctity and miraculous gifts, who will give out that she has conceived and given birth to him by a divine afflatus. Some have maintained the opinion, that Antichrist will be Satan incarnate, but the more recent theologians reject this opinion as absurd, and hold that he will merely be under a high degree of diabolic influence. The period of the sway of Antichrist, it is supposed, will continue for $8\frac{1}{2}$ years from the time when his power has reached its acme, after which he will be destroyed by an extraordinary interposition of the Almighty, a short time before the end of the world. Some Catholic writers dissent from the more common opinion, and explain the prophecies concerning Antichrist as relating to Mohammedanism, or some other principle or power, hostile to Christianity.—For a very copious treatise, in which the more common opinion is elucidated, see the "Theology" of Cardinal Gotti, and also the "Commentaries" of Cornelius a Lapide, on the relevant passages of Scripture.

ANTIOLINAL AXIS (Gr. *αντι* and *αξίς*, to bend), a geological term used to express the line from which the strata dip in opposite directions, corresponding to the ridge pole of a house, or the crest line of an arch. The corresponding line from which the strata rise in both directions, is called the synclinal axis.

ANTIOOSTI, a barren island of Canada East, in the estuary of the St. Lawrence, between lat. 49° and 50° N. and long. 62° and 65° W. Area, 2,500 square miles. Its surface is mountainous and densely wooded. It has a lighthouse on its S. W. point, 100 feet high, which is lighted from March to December.

ANTIOYRA. I. A city of Thessaly, famous for producing the hellebore, which was regarded by the ancients as a cure for madness.—II. A city of Phocis on the Corinthian gulf, also cele-

brated for the production of hellebore. The Antioyreans are said to have been expelled from their city by Philip, after the close of the sacred war. It was taken, in a subsequent age, by the Roman general Lævinus, and given up by him to the Ætolians. It was occupied, during the Macedonian war, by Titus Q. Flaminus, for the sake of its harbor, which afforded a secure retreat for the Roman fleet. The site of Antioyra is still discernible on the shore of the Corinthian gulf. It is known by the name of Aspropitia, or "the white houses."

ANTIDOTES (Gr. *αντι*, against, and *διδωμι*, to give), a term formerly used to signify a remedy or preservative against sickness, but now applied only to applications to counteract the effect of poisons. Poisoning is produced by so many different causes, that no general specific can be given for its treatment, but each case must be treated according to its peculiarities, and, to some extent, according to the constitution of the individual. To get rid at once, however, of the poisoning substance, or to check its effects, are the general results to be sought for. In case of bites from poisonous reptiles, as snakes, the poison may be removed by immediately sucking the wound, the mouth being partially filled with water, which is ejected from it with the venom. The cupping glass affects the same object, or, what will answer as well, any cup or glass, from which the air has been partially expelled by burning in it a candle or piece of paper, and then applied to the wound. When a poisonous substance has been swallowed, the stomach pump is the most effectual application to extract it; but as it is not often convenient to procure this, emetics should be given without any delay. Common mustard, mixed in warm water, can always be obtained, and this drunk freely produces vomiting more speedily than ipecacuanha or tartar emetic. A little sulphate of zinc (white vitriol), or sulphate of copper (blue vitriol), dissolved in warm water, acts as speedily as the mustard. Vomiting should be kept up for some time with copious draughts of warm water, followed with milk, barley water, or flour and water. For specific poisons, a number of antidotes may be selected; and it is well to have these conveniently arranged for reference. For arsenic, emetics, following large doses of lime water, cold, are recommended, the lime forming with the arsenic an insoluble arsenite of lime, and detaching the poison from the coats of the stomach. Vomiting is to be continued with the use of much milk or gruel, and barley-water. For corrosive sublimate, the whites of eggs with water, followed with milk and cream; decoction of cinchona; infusion of galls. For oxalic acid, chalk and water, and emetics. For acetate of lead, emetics with sulphate of soda; ammonia; milk; white of eggs. For prussic acid, smelling salts carefully applied to the nose; sal-volatile, or liquid ammonia in brandy and water repeated in small doses; and also chlorine in solution in water; and chloride of lime in

water; cold water should be dashed upon the face and spine. For laudanum and other opium preparations, emetics; cold water in the face and breast; forced exercise; strong coffee. For sulphate of copper and other copper poisons, sugar and water, and whites of eggs. For sulphate of zinc, carbonate of soda in water with milk, barley-water, or gruel. For strychnia, infusion of gall-nuts, emetics, decoction of cinchona. For tartrate of antimony, astringent vegetable substances, which contain tannin, oak-bark alone excepted. For any of the compounds of barytes, an alkaline or earthy sulphate, as sulphate of soda, or sulphate of magnesia. For poisoning produced by the bite of a mad dog, cauterizing the wound thoroughly with a hot iron is the best application, and then preventing the circulation from the part by tying a cord tightly about it.

ANTIGONE, a daughter of Œdipus by his mother Jocasta. When Œdipus, after murdering his father, and committing incest with his mother, put out his eyes in despair, and went to Attica, Antigone guided him on the way, and attended on him till his death. She then returned to Thebes, where Hæmon, son of the tyrant Creon, became enamored of her. But this love was destined to be unfortunate. The brothers of Antigone having fallen in the war against Thebes, and she having attempted to bury them in defiance of an edict of Creon, the tyrant ordered her to be imprisoned in a subterranean cave, where she instantly killed herself. Hæmon, on hearing of her tragic end, rushed wildly to her prison-house, and slew himself on her corpse. The story of Antigone was a favorite subject with the great tragic poets of Greece.

ANTIGONUS. I. The Cyclops, so called from having lost an eye in battle, one of the officers of Alexander the Great, slain at the battle of Ipsus, in Phrygia. He was a Macedonian by birth, and at the distribution of Alexander's empire among his generals, he received as his share the greater Phrygia, Lycia, and Pamphylia. Perdicas was the first of these generals who aspired to universal domination, and as Antigonus was his nearest neighbor and most immediate opponent, he was first attacked, and took refuge, along with his young son Demetrius, afterward called Poliorcetes, at the court of Antipater, regent of Macedonia and Greece, and apprised his protector of the dangerous ambition of Perdicas. A coalition was formed against Perdicas, Eumenes alone siding with him. On the sudden death of Perdicas in Egypt, Antipater made a new distribution of the Asiatic provinces. Antigonus had Susiana added to his former dominions, and to him was committed the charge of annihilating Eumenes, the ally of Perdicas. By bribing one of his officers, Antigonus gained a victory over the able and honest Eumenes, and shut him up in the strong fortress of Nora. In the mean time, Antipater died, and Antigonus in his turn began to aspire to that universal domin-

ion which Perdicas had aimed at in vain, and from this time (318 B. C.) to the end of his life, he was involved in an unceasing contest. Eumenes managed to escape from Nora with great adroitness, and took the part of Polysperchon, the legitimate successor of Antipater, in the office of regent and guardian of Alexander's children. On the other hand, Cassander, the eldest son of Antipater, discontented with his subordinate position, conspired against Polysperchon, and sought the assistance of Antigonus. The latter finally succeeded in destroying Eumenes, and after that he marched toward the Persian capital, Susa, and took possession of the riches stored up there by Alexander. He now took occasion to quarrel with Seleucus, governor of Babylonia, who fled to the cautious Ptolemy of Egypt, and warned him of the ambition of Antigonus. A coalition was immediately formed against him. Ptolemy and Seleucus readily induced Lysimachus of Thrace, and even Cassander, who had now got rid of Polysperchon, to join the league of common defence. Antigonus had only his son Demetrius to help him. The coalition demanded that he should restore Babylonia to Seleucus, and resign to Lysimachus Hellespontine Phrygia; to Ptolemy, Syria, and to Cassander, Cappadocia and Lycia, and to throw into a common lot the treasures he had captured at Susa. Antigonus sent his representative, Aristodemus of Miletus, to aid Polysperchon, the enemy of his enemy, Cassander, and with men and money to appeal to the patriotic Hellenic and anti-Macedonian feeling in many of the chief cities of ancient Hellas as another weapon against Cassander. In both of these objects Aristodemus was successful. The Macedonian garrisons were expelled from the Peloponnesus, Eubœa, Thebes, and the greater part of Phocis and Locris. Seleucus, however, regained his satrapy of Babylonia. After a hollow truce of one year, during which Cassander murdered Roxana and the young Alexander, the war broke out again. The restored Athenian democracy paid to Antigonus and his son Demetrius Poliorcetes extravagant honors. Gilded statues were erected to them near those of Harmodius and Aristogiton. Golden crowns were voted to them; they were worshipped as the gods protectors, and a priesthood was constituted in their honor. Two new wards were added to the ten previously existing, and named respectively Antigonis and Demetrias. This state of things could not last long. After a great victory gained by Antigonus over Ptolemy, he boldly threw off the pretence hitherto kept up by the generals of Alexander, that they were holding merely for his heirs, and assumed, in advance of all his rivals, for himself and his son, the title of king. However much divided against each other in other respects, the generals were united on this point. Ptolemy, Lysimachus, and Seleucus, immediately called themselves kings also. Cassander, general of Macedonia, and immediately in contact with the national sentiment of Macedonia, held

back a little longer, but soon after followed. Cassander was driven out of Greece by Demetrius (308 B. C.), and, trembling for his Macedonian throne, he sent embassies to Lysimachus, Seleucus, and Ptolemy, to make a grand diversion in his favor in Asia Minor, and to strike a blow against Antigonus at home. Seleucus and Lysimachus made a junction in Phrygia, and Demetrius was recalled hastily from the Peloponnesus to aid his father. In Aug. 301 B. C., the armies met at Ipsus, for the decisive battle which was to determine whether there should be one master or a balance of power over the greater portion of the civilized world. Antigonus and his son had about 70,000 foot, 10,000 horse, and 75 elephants; the coalition had 64,000 foot, 10,500 horse, with 400 elephants, and 190 armed chariots. Before the battle, Antigonus "boasted that he could break up the present league and disperse the united armies with as much ease as a boy does a flock of birds by throwing a stone or raising a shout." The event of Ipsus did not justify his expectations. Demetrius defeated Antiochus, the son of Seleucus, but pressed him too far in pursuit, so that Seleucus cut him off. The Thracian archers of Lysimachus broke the centre where Antigonus, now at the age of 81, was commanding. He would not flee, saying Demetrius would come and help him, and died on the field of battle, leaving the victory to those who represented the principle of a balance of power in the world.—The domestic character of Antigonus was good. He loved arts and letters, and was attached to Hieronymus of Cardia, and the poet Anagoras. Some of his sayings are reported by Plutarch. Hermodorus, a flattering poet, having called him the son of Phœbus Apollo, Antigonus answered, "My servant knows better." Thrasyllus, a cynic philosopher, having demanded of him a drachma, he said, "The gift is too little for a king." "Then give me a talent," said the begging philosopher. "That's too much for a cynic," said the royal wit. II. ANTIGONUS GONATAS, grandson of the preceding, and son of Demetrius Poliorcetes, king of Macedonia, born about 320, died 240 B. C. He is supposed to have received his surname from his native village of Gonni, in Thessaly, though this is called in question by Niebuhr. When his father was captive in the hands of Seleucus, king of Babylon, Gonatas offered to take his place. The affairs of Macedonia having fallen into confusion after the invasion of the Gauls, Ptolemy Ceraunus having been slain, and Sosthenes having died, Antigonus thought the moment favorable to set up pretensions to the Macedonian throne in right of his father Demetrius, who had occupied it for a few years. He entered Macedonia with a small force, drove out Brennus and his Gauls, and was joyfully accepted by the Macedonian nation as their king, 277 B. C. But Pyrrhus, king of Epirus, expelled him from Macedon in 273, and he fled into the Peloponnesus, where he had much influence. On the

death of Pyrrhus, in 271 B. C., he recovered Macedonia, was again expelled by Alexander, son of Pyrrhus, and again reinstated by his own son Demetrius. Thenceforward he held his dominions in peace, and extended his influence in the Peloponnesus, where his chief opponent was Aratus and the newly invigorated Achaean league. His son, Demetrius II., succeeded him. III. ANTIGONUS, king of Macedon, born 290, died 221 B. C., surnamed Doseon, because he was more ready to promise than to perform. He was an illegitimate grandson of Demetrius Poliorcetes, and was named guardian of the young son of Demetrius II. The Macedonian nation preferred his rule on account of his military talents, and chose him to be their king. He married the widow of Demetrius II. He was successful in his wars against the Dardanian, Thessalian, and Moesian rebels. In the affairs of the Peloponnesus he took the part of Aratus and the Achaean league against Cleomenes and the Spartans. He defeated Cleomenes decisively at Sellasia, 221 B. C., and actually took the city of Sparta, whose only walls for ages had been the valor of her sons, and which had bravely resisted Epaminondas and Alexander the Great. IV. King of the Jews, and the last of the Maccabees, born 80 B. C., died 35 B. C. He was made prisoner and sent to Rome by Pompey. He escaped, made another revolt in Judaea, and was taken a second time, by Gabinius, who sent him again to Rome. Julius Cæsar permitted him to return. He was placed on the throne of Judaea by the Parthians, 40 B. C., and was besieged in Jerusalem by the troops of Mark Antony. He was taken, beaten with rods, and put to death. It was the first time that the Romans had treated an independent king so ignominiously. V. OF CAERYSTUS, in Eubœa, a writer of Alexandria, who lived while Ptolemy Philadelphus was reigning (285–247 B. C.). He wrote several works, of which one only, "A Collection of Wonderful Histories," has come down to us.

ANTIGUA, a British West India island, of the Leeward group. It is of an oval shape, and contains an area of 70,000 acres, of which about 60,000 are highly cultivated. It was first settled by the British in 1682, who began the cultivation of tobacco. It has no rivers, and is remarkable for dryness of climate; yet away from the coast the soil is very rich, and produces abundance of sugar. The legislation is intrusted to a governor, a council of 12, who are nominated by the crown, and a house of assembly of 24 members, chosen by the freeholders. The governor also acts as chancellor of the court of equity. It is garrisoned by a military force. This island was discovered by Columbus in 1493, and was the first which modified the British criminal law with regard to slaves, by affording such of them as were accused the benefit of trial by jury. The legislature of this island totally abolished slavery in 1834, without imposing any conditions upon the emancipated, and in 1847 the governor reported that the

material condition of the emancipated race was most prosperous. Antigua is regarded as a remarkably beautiful and healthful island. The temperature is remarkably uniform, seldom varying more than 4° in 24 hours. Its chief towns are St. Johns, which is the capital, Falmouth, and Parham. The property annually produced is estimated at £1,000,000. Pop. in 1847, 86,790.—**ANTIEUA**, a station in the Philippine islands, with a fort and a good anchorage.

ANTILEGOMENA, an early and now nearly obsolete word in biblical criticism, used as far back as the time of Eusebius, about 325, to designate in the then unsettled state of the scriptural canon, those books claiming to be Scripture, whose claims had been challenged, and were under investigation. The antilegomena are to be distinguished from the apocryphal books. The apocryphal books are decided by the church not to be canonical, and are therefore not read in churches as a part of the sacred Scriptures, while the antilegomena were only under examination, and still continued to be read. Some of the antilegomena, in the progress of biblical criticism, have taken their places as canonical, while others have been set aside as apocryphal.

ANTI-LIBANUS, or **ANTI-LEBANON**. From the Taurus range, as it passes the north-eastern point of the Mediterranean, are thrown off two subordinate ranges, which take a southern direction parallel to each other, skirting the eastern coast of the Mediterranean, and extending to the peninsula of Sinai. The western and highest of these ranges is the Libanus; the eastern, the Anti-Libanus. They are separated by a valley averaging 20 miles in breadth in the northern part of their course. To the south the Anti-Libanus sends off a spur which unites with the Libanus, and so separates the interlying valley into the northern or Syrian, and the southern or valley of Jordan. Through the northern flows Orontes, or northern river. In the heights of Hermon, the uniting spur, and the highest land of the Anti-Libanus range (9,000 feet), rises the Jordan, which flows to the south; while from the same table-lands the great western river, the Litany, takes its origin, and coursing to the south-west, enters the Mediterranean. Thus the Libanus and Anti-Libanus form a great water-shed extending from the bay of Iskenderoon on the north to the desert of Arabia. The Anti-Libanus range is lower than the Libanus, and less continuous. Its geological character differs from the Libanus. It is less fossiliferous, as its limestones approach a crystalline character, giving more striking evidences of volcanic agency. It lacks also the far-famed "cedars of Lebanon," its foliage being mostly of the light poplar. It abounds in small lakes, enclosed in its high table-lands, a characteristic mostly wanting to the Libanus range. (See Stanley's "Sinai and Palestine," and Robinson's "Biblical Researches in Palestine.")

ANTILLES. There is a want of uniformity among geographers in the application of this

term. It seems that the name Antilla was given before the time of Columbus to a continent supposed to exist west of the Azores. Some suppose, therefore, that Columbus gave this name to the lands he first discovered. It is not now used by any geographer in this sense. Others suppose the word was derived from *antillas* (forward islands). Such apply it only to the Caribbean islands which stand in a semi-circle around the entrance to the sea of that name. Other geographers extend the term Antilles so as to include with the above the four larger islands which appear naturally to belong to the same insular chain, Porto Rico, San Domingo, Cuba, and Jamaica. Others still use the term to include all those islands which lie between the northern and southern continents of America, and stretch across the entrances of the Caribbean sea and the Gulf of Mexico. In this most extended sense it is used in Ritter's and Lippincott's Gazetteers as synonymous with West Indies. The third is the most general use of the term, as well as the most natural. For if we consider the geological structure of the Bahamas, it is evident at a glance that they belong to an entirely different system from those included in the third definition.—The Antilles are usually divided into two groups, the Greater Antilles including the four large islands already enumerated, and the Lesser Antilles or the Caribbean islands, of which there are from 700 to 800, though some are mere rocky and uninhabitable projections from the sea. The Greater Antilles are geologically of primitive formation, showing mostly an axis of granite running east and west, overlaid on the northern and southern coasts with recent limestone. They are also subject to earthquakes, showing that they are to be regarded as the continuation of the volcanic chain of the Andes, connecting it with the Lesser Antilles, which exhibit still more marked evidences of volcanic origin. The east and west shores of these islands are bluff, and descend so precipitously beneath the sea, that a distance of less than a mile from the coast usually gives a sounding of 200 fathoms. The western shore is usually more precipitous than the eastern, and the mouths of extinct volcanoes are frequent. Hot sulphurous vapor is still discharged from many fissures among the rocks. The same volcanic action has evidently thrown up those rocky projections, which, like a thousand sentinels, stand around and amid the entire group. The rivers of the Antilles are short and the currents precipitous, while the volume of their waters is disproportionately large, on account of the excessive sea evaporation, which it is estimated reaches 88,000,000 tons daily to every square degree. This, with several other influences connected with the geology and topography of the group, causes the excessive humidity of the atmosphere in the Antilles. The average descent of the river beds is 250 feet to a mile, while in some instances, as the Cazanavrie, in Martinique, it reaches 1,000 feet. All along the

river-beds are huge lava blocks, another evidence of the comparatively recent and volcanic origin of the Antilles. The rivers are of course of no commercial importance. The climate of the islands is mild; the fruits are tropical, sugarcane being the staple production, of which there are several varieties in cultivation. Geographically, the Antilles extend in a broken line from Trinidad, lat. 10° N. long. $60^{\circ} 54'$ W., along the southern coast of Florida, nearly to the peninsula of Yucatan (from which it is separated by the channel of Yucatan), with a general trend of W. 40° N. through a course of more than 1,500 miles. Politically, the Antilles are thus divided: 1. The independent island of Hayti. 2. The English, including Jamaica, Antigua, Barbadoes, Barbuda, Anguilla, Dominica, Grenada, Grenadines, part of the Virgin islands, Montserrat, Nevis, St. Christopher, St. Lucia, St. Vincent, Tobago, and Trinidad. 3. The Spanish, including Cuba and Porto Rico. 4. The Venezuelan, comprising Margarita, Tés-tigos, Tortuga, Blanquilla, Orchilla, and Rocca. 5. The French, Guadalupe, Martinique, Marie Galante, All Saints, Desada, and the northern part of St. Martin. 6. Dutch, the southern part of St. Martin, Aves, Buen Ayre, Ouraço, Aruba, Saba, and St. Eustatius. 7. Danish, St. Thomas, St. John, and St. Croix. 8. Swedish, St. Bartholomew. The entire area of the Antilles is about 150,000 square miles, and the population about 3,500,000, made up of Europeans, creoles, and negroes.

ANTILLON, a Spanish savant, born about 1760 at St. Eulalia, a village in Aragon, died in 1820. He studied at Saragossa, and was made professor of astronomy, geography, and history to the royal seminary of nobles at Madrid. He opposed the French invasion as a member of the Aragonese junta, and was a partisan of constitutional ideas. His liberal opinions displeased the restored Ferdinand. He was summoned to Madrid to be tried, but died of disappointment on the journey.

ANTIOCHUS, a son of Nestor. He accompanied his father to Troy, where he was slain by Memnon, the Ethiopian, and interred beside his friends Achilles and Patroclus, with whom he was constantly associated in Hades.

ANTIMACHUS of Claros, a Greek epic and elegiac poet, is said to have been contemporary with Plato. Cicero tells the following story of Antimachus: He was once reading his great epic poem, "Thebais," to a very numerous audience, who became so weary of it that they all gradually decamped save Plato, who chanced to be present, on which the poet exclaimed, "I shall, nevertheless, continue to read, for one Plato is worth thousands of other hearers." Antimachus was so voluminous a writer, that in the 24th book of his epic on the war of the Seven against Thebes, his heroes had not yet arrived before the city. His style had none of the simplicity and grace of Homer, but the Alexandrine critics thought so highly of his produc-

tions that they assigned him the second place among epic poets. The remains of the works of Antimachus were collected and published by O. A. G. Schellenberg, at Halle, in 1786.

ANTI-MASONRY. In the autumn of 1826, it became known in the vicinity of Batavia, a thriving village in western New York, that one William Morgan, a mechanic of that village, was about to publish a volume exposing the secrets of the order of freemasons, then a numerous and powerful association, with one or more lodges in every city in the United States. The editor of the village newspaper, known as the "Republican Advocate," who, as well as Morgan, had been a member of the masonic order, was believed to be concerned in the enterprise, and to be engaged in printing the work. While the rumor was spreading through the adjacent country, the community was electrified by tidings that Morgan had been seized one evening, forcibly abducted and carried off, no one could say whither. Excitement naturally ensued and diffused itself; committees of vigilance and safety were formed; and an investigation initiated, which resulted in tracing the abductors and their victim to westward upon the Ridge Road to Fort Niagara, near Lewiston, N. Y., whence it ultimately appeared that Morgan had been taken forcibly out upon Lake Ontario in a boat and sunk in its depths. This was the final conclusion of those who prosecuted the investigation; though many demurred, and reports were repeatedly current that Morgan had been seen alive and at liberty, months after his reported abduction. One of these accounts placed him in Smyrna in Asia. The persons by whose aid he was rapidly and quietly conveyed, in a carriage drawn by relays of horses, from Batavia to Fort Niagara, were said to have been masons, while members of the order on every side were heard to justify the presumed outrage; saying that if Morgan had been treated as was alleged, it was no more than he had richly deserved. Prosecutions were in due time instituted against those whom the investigation showed to have been in any way concerned in the abduction; and repeated trials resulted in the conviction of some of them on minor charges, but no murder was ever judicially established. An important collateral result was attained in establishing, by the testimony of seceding masons, that oaths were administered to and taken by those admitted to the masonic lodges—at least in certain of the higher degrees—that disqualified them for serving as jurors in any case where a brother mason of like degree was a party, and his antagonist was not. The judges who so decided were not of the anti-masonic party, which was formed in western New York some time in 1827, and which polled 38,000 votes for its candidate for governor (Solomon Southwick) in 1828. This vote rose to 70,000 in 1829, and to 128,000 for Francis Granger for governor in 1880; in which aggregate, however, were included the suffrages of many who were not anti-masons. The excitement gradually

diffused itself into other states, and in 1881 a national anti-masonic convention was held, wherein most of the free states were represented, and William Wirt, of Maryland, was nominated by it for president, with Amos Ellmaker, of Pennsylvania, for vice-president of the United States. Mr. Granger was again the anti-masonic candidate for governor of New York in 1832, and again received the votes of nearly all opposed to the reelection of Gen. Jackson, but was again defeated this time by some 12,000 majority. In Pennsylvania, Joseph Ritner was this year brought forward as the anti-masonic candidate for governor, and beaten by barely 3,000 votes by Gov. Wolf, who had many enemies in his own party; but, at the subsequent presidential election that year, Gen. Jackson carried the state over the combined opposition by some 25,000 majority. Anti-masonic state and electoral tickets were supported in many if not most of the free states, but were successful only in Vermont, which cast her seven electoral votes for Wirt and Ellmaker. Vermont remained for two or three years under anti-masonic rule, but this party gradually faded out, and was absorbed by others during the blended political and financial struggle that grew out of Gen. Jackson's veto of the U. S. bank charter in 1832, and the removal of the deposits in 1833. Until then western New York, the theatre of the Morgan abduction and the cradle of the anti-masonic excitement, gave large anti-masonic majorities, while western Pennsylvania, northern Ohio, and portions of Massachusetts and Rhode Island, evinced a preponderating sympathy therewith. It became evident toward the last, however, that hostility to freemasonry was a secondary consideration with many, both of those who cherished and those who opposed the new party. Questions of currency, protection, and the like, superseded those growing out of the existence and alleged inherent vices of the masonic order. In 1835, during the struggle which followed the removal of the deposits, Joseph Ritner was chosen governor of Pennsylvania as an anti-mason, through a division in the democratic ranks; but the anti-masonic party gradually lost its distinctive character, and soon after ceased to exist. Some of the periodicals and books called-forth by the masonic controversy during its progress evinced decided intellectual force, and there were several distinct "Revelations" of the signs, ceremonies, pass-words, and traditional secrets of the freemasons, agreeing in the main with the book originally put-forth as Morgan's soon after his disappearance.

ANTIMILO, or **ANTI-MELOS**, a small island lying about 5 miles directly W. of Cape Vani, the northernmost point of Melos, one of the principal islands in the group of the Cyclades, in the Grecian Archipelago.

ANTIMONY, a metal first extracted from the ore in the year 1490, by Basil Valentine, a monk of Erfurt. It is of a silver white color, slightly bluish, of strong lustre, and of a pe-

cullar taste and smell. Its texture is radiated and fibrous, and the metal is so brittle that it may be pounded to powder in a mortar. For this reason it cannot be used alone for any practical purpose, but combined with other metals it forms valuable alloys. Its specific gravity is 6.7, its melting point 842° F. At common temperature it does not oxidize, but heated moderately in the open air, it takes fire, and burns with a bright bluish-white flame. The vapor is an oxide, which, in condensing, often forms beautiful crystals. These were formerly known as the argentine flowers of antimony. The metal, also, after being melted in close crucibles, and cooled very slowly, crystallizes in octohedral forms. The name is said to be derived from the words *anti-monachos*, or anti-monks, some preparation of the metal having proved fatal to several of the brotherhood, notwithstanding it had been observed, that the same mixture had a fattening effect upon hogs, after purging them. The ancients gave the name *stibium* to some compound of the ore they were acquainted with, which was, without doubt, the common ore of commerce, the sulphuret. This name is adopted in chemical nomenclature to represent the metal. Its symbol is Sb. Antimony is sometimes found in a metallic state. It so occurs in the Hartz, in France, and Sweden. The only important natural production of it, however, is the sulphuret, a combination of 72.86 parts of the metal, and 27.14 of sulphur. This ore is of a lead gray color, crystallized in laminae and needles, which are very brittle and fusible in the flame of a candle. Its specific gravity is from 4.13 to 4.6,—hardness=2. It is easily ground to a black powder, and in this state forms a pigment, which appears to have been used in ancient times by ladies for coloring the eyebrows and edges of the eyelids. *Oculus ejus posuit stibio*, says St. Jerome of the paint used by Jezebel. The ore is not of rare occurrence in metalliferous districts, but the great supply of it is through Singapore, from the island of Borneo. There are mines of it in Lower Hungary, France, and Great Britain. A large vein of it has been found in Tulare county, California, about 80 miles from Los Angeles, in a high granitic range, that borders the Tulare valley on the south. Before the discovery of the metal, its ores were used in the preparation of its alloys with other metals. Its separation from the sulphuret is now effected by first melting the ore in crucibles, perforated at the bottom, and placed in other vessels. As the ore melts, it flows through into the lower vessel, unaltered in composition, but freed from its earthy gangues. This is the crude antimony of commerce. On roasting it to expel the sulphur, different combinations of oxide of antimony and sulphur are formed—as the glass of antimony, the liver of antimony, and crocus. The first-named consists of 8 parts of oxide and 1 of sulphuret. It is a transparent salt, of a reddish yellow color. Crocus contains 2 parts of sul-

phuret to 8 of the oxide. It is opaque, and of a yellow-red color. Liver of antimony is opaque and deep brown. It consists of about 4 parts of sulphuret, and 8 parts of oxide. Crude antimony is reduced to a metallic state by first carefully roasting it to obtain the oxide. This is then mixed with crude tartar, or with carbonate of soda, and powdered charcoal, placed in melting pots, and heated in a wind furnace. An impure metal is thus obtained called the *regulus* of antimony. This is again melted with a small proportion of oxide of antimony, by which it is freed from its impurities. Antimony combines with oxygen in 3 proportions, the first forming the protoxide or sesquioxide, the second the deutoxide, or antimonious acid, and the third the peroxide, or antimonie acid. The second is, however, very probably, a combination of the first and last. The acids of antimony and their compounds have no especial interest or importance. The protoxide is the base of the medicinal preparations of this metal. Combined with bitartrate of potassa, and water, it forms a compound consisting of 1 atom of tartrate of potassa, 1 atom of bitartrate of antimony, and 2 atoms of water, a bitartrate of antimony and potassa, which is the medicine known as tartar emetic. This acts powerfully upon the stomach to produce vomiting, whether taken internally, or injected into a vein, or applied externally as an ointment or plaster. It is in extensive use as a specific for a great variety of diseases. Antimonial powder, or James's powder, is said to consist of 48 parts of phosphate of lime, and 57 of oxide of antimony. The most important alloys of antimony are type metal, consisting of 4 parts lead, and 1 of antimony; stereotype metal, 6 of lead, and 1 of antimony; music plates, consisting of lead, tin, and antimony; Britannia metal, consisting of 100 parts tin, 8 antimony, 2 bismuth, and 2 copper. Pewter is sometimes formed of 12 parts tin, and 1 part antimony. A powerful detonating powder is prepared by subjecting to a high heat 100 parts of tartar emetic and 3 parts of lamp black for some hours. The crucible should be left to cool under a bell-glass. The powder will explode by being moistened with a drop of water. Great care is requisite, from its liability to explode spontaneously.—To detect the presence of antimony in cases of poisoning, the suspected matter is treated with water, and then with chlorohydric acid, and boiled. One-fifth the weight of the suspected substance employed of chlorate of potash is added in small portions at a time. It is then introduced, after being filtered, and concentrated by evaporation, into a Marsh's apparatus, as in testing for arsenic, when a ring of metallic antimony, if this is present, forms in the tube, and may be proved by its characteristic reactions.

ANTIN, LOUIS ANTOINE DE PARDEILLAN DE GONDREIN DE MONTESPAN, marquis d', the son of the marquis of Montespan (afterward duke), born in 1665, died in 1786. His only claim to

notice rests upon the notoriety connected with the name of his mother, a mistress of Louis XIV. When Antin became of age, the marchioness de Montespan was already superseded in the favor of the fickle old king, by Madame de Maintenon, but she preserved sufficient influence to obtain for the only child for whose birth she had no need to blush, the office of lieutenant-general, and governor of Alsatia. Louis XIV. took a fancy to him, and once went even so far as to pay him a visit in company with Madame de Maintenon. On this occasion Antin displayed great tact, as he had arranged an apartment for Madame de Maintenon in every particular of furniture, tapestry, carpets, paintings, &c., precisely like her apartment at Versailles. Maintenon felt much pleased with this delicate attention, especially as it came from the son of the woman who had every reason to detest her, and subsequently she manifested her sense of gratitude by causing him to be created duke and peer, and obliging him in many other ways. D'Antin made a very rich match, and after his mother's death came into possession of an additional fortune, but he was a confirmed gambler, and a man of dissipated habits. He left two children, but the house of Montespan is now extinct, as the last bearer of the name, Louis de Gondrin, great-grandson of the Montespan, died childless in 1757.

ANTINOË, a daughter of Cepheus, who, in obedience to an oracle, led the Mantineans from the place where their original city was situated, to that where the modern city was to stand. She is said to have been conducted thither by a serpent.

ANTINOMIANS (Gr. *anti*, against, *nomos*, law), a term applied by Luther to a class of contemporary theologians and their followers, who entertained what he deemed extreme and unscriptural views of the relations of the law to the gospel. John Agricola, the principal expounder of the Antinomian sentiments, maintained that his doctrines were sustained in the earlier writings of Luther himself, and accused Melancthon of a want of logical consistency, in rejecting the Antinomian conclusions. The characteristic doctrines of Agricola were, that the law (by which he meant the moral law) is to be widely distinguished from the gospel, as a dispensation entirely on another plane; that the law was in force over all unbelievers, but that so soon as a person exercises faith in Christ, the gospel receives him under a new moral economy, with which the law has no possible relations; that the law was not in any wise instrumental as introducing men to the benefits of this new and freer dispensation; but that the evangelical conditions of repentance and faith were to be sought and secured only by the preaching of the gospel itself. In the attempt to bring into sharp outline the opinions of this sect, and contrast them with the more generally received doctrines of the reformation, the controversial

spirit of the times doubtless brought injustice to both parties, and especially to the personal opinions of their leaders. Although the strife ran high between Luther and Agricola, a conference at Torgau (1527) amicably adjusted their personal relations, and gave good promise of rest to the churches from the disputes which had harassed them. For 10 years a truce was observed. But in 1537, Agricola resolved to remove from Eisleben, his native town, to Wittenberg, and from this more prominent position, as a professor of theology, began to promulgate his doctrines, at first in a series of anonymous theses, under the title of *positiones inter fratres sparsæ*. Luther assailed him anew, and the strife ran higher than ever, until 1540, when Agricola, elected court preacher to the electoral prince of Brandenburg, recanted the sentiments which had rendered him peculiarly obnoxious to Luther, and pledged himself to the end of his life, "to teach in conformity to the Wittenberg church." This recantation, although it allayed the violence of the doctrinal discussion, did not protect Agricola from the attacks of his enemies. Whether justly or unjustly, he continued to be assailed on matters of faith to the day of his death (1566). From the death of Agricola, the Antinomian controversy took a still more conciliatory form. The parties once so strongly marked, began now to coalesce. "The controversy now centred upon the use which should be allowed to the law," and it was finally agreed by all parties that the law was of use, 1, to lead to Christ; 2, to keep unbelievers in order; and 3, that the lives of Christian professors should be in conformity to the law, though not controlled by and taking origin in the law. Thus, by leaving out the only vital point in the discussion at the outset, viz., the organic relations of the law to the gospel, the *formula concordia* satisfied the scholastic temper of the times by technical concessions, and adjourned the real contest into the hands of the future. The Amsdorfians entertained very nearly the same sentiments as Agricola. In 1643, the assembly of divines condemned some works thought to be of Antinomian tendency, and in 1648 the English parliament ordered all persons holding Antinomian doctrines, to be imprisoned in case of refusal to recant, until they should find sureties that they would not promulgate their sentiments. The charge of Antinomianism has frequently been brought against Methodism, and as frequently repelled. A standard work on that subject among Methodists is "Fletcher's Checks." An Antinomian tendency made its appearance among the English Baptists in 1689, and later among the Baptists of this country, in a subdivision of that denomination known as Disciples, the principal expounder of whose sentiments is Alexander Campbell of Virginia.

ANTINOUS. I. One of the suitors of Penelope, and the first one slain by Ulysses on his return. II. A beautiful Bithynian

youth, the favorite of the Emperor Hadrian, drowned himself in the Nile A. D. 132, according to Dion Cassius, under the following circumstances:—The oracle at Besa had informed the emperor that a great danger which was threatening him could only be averted by the immolation of the person whom he loved most fondly. The youth hearing this, threw himself into the Nile as a voluntary sacrifice for the safety of his friend and master. To perpetuate his memory, Hadrian transformed Besa into the magnificent city of Antinopolis, or Antinoë, and caused a constellation of the heavens to be called by his name. Antinous was deified, and mysteries in his honor were celebrated at Mantinea. Artists vied in celebrating the beauty of the emperor's favorite, and a great number of busts, medallions, and statues of him appeared.

ANTIOCH, a city of Syria in Asia, 20 miles from the mouth of the river Orontes, was the most magnificent of 16 cities of the same name built by Seleucus Nicator, about 300 B. C., in memory of his father Antiochus. It was advantageously situated, in communication with all the trade of the Mediterranean, and conveniently approached by caravans from the east. Lying in a fruitful vale on a winding river, surrounded by bold mountain scenery, it was familiarly called by the Greeks "the beautiful Antioch," and became the favorite residence of the Selucid princes, and of wealthy Romans. In the time of Chrysostom its population was computed at 200,000, and the ancient and illustrious Christian church, which had been established here soon after the martyrdom of Stephen, then numbered 100,000. The inhabitants were distinguished both for their intellectual and their luxurious character. A high Greek civilization was mingled with various Asiatic elements; a passionate love of frivolous amusements was closely associated with a strong tendency to metaphysics and a solemn faith in astrology. The citizens were famous for their scurrilous wit, and for their invention of nicknames; and to this cause is to be attributed the appellation of "Christian" first given in this city to the followers of Jesus Christ. For 600 years Antioch deserved the title which Pliny gave it, of "Queen of the East," but few cities have suffered such vicissitudes of fortune. About 145 B. C., 100,000 of the inhabitants perished in a war with the Jews under Jonathan, one of the Maccabees. In A. D. 115 Antioch was almost utterly ruined by an earthquake, but was rebuilt in its ancient splendor by the contributions and influence of the Emperor Trajan. In 155 it was destroyed by fire, and restored by Antoninus Pius. On the decline of the Roman empire it suffered severely in the wars with Persia. In 331 it was visited by a famine so dreadful that a bushel of wheat sold for 400 pieces of silver. The same calamity befell the city in the reign of Julian, and again in that of Theodosius. The inhabitants were severely punished by Theodosius in 337 for resisting

the payment of an extraordinary tribute. In the years 458, 526, and 587, Antioch was visited by earthquakes, and on each occasion almost utterly ruined. In 634 it fell into the hands of the Saracens, in 975 was reannexed to the Roman empire, in 1098 was taken by the crusaders, and was extinguished as a powerful city in 1268 by Bibaro, sultan of Egypt. It has never recovered from the effects of the earthquake of 1822, and now contains but about 6,000 inhabitants. Antakia, or modern Antioch, is a miserable town, with mud and straw houses, and miry streets, occupying the south bank of the Orontes, at this place about 120 feet wide. It has 14 insignificant mosques with low minarets, but no Christian church. The fertile plain of Antioch is quite uncultivated, but on the hills around are numerous plantations of figs, olives, and vines.

ANTIOCH COLLEGE, a seat of learning, situated at Yellow Springs, Greene county, Ohio, 74 miles N. N. E. of Cincinnati. It was incorporated in 1853, and has the peculiar characteristic of admitting girls and boys to the same course of education. Its buildings were erected at an expense of over \$100,000, and are in a most beautiful and healthful location. Horace Mann, a distinguished scholar and statesman, and the former secretary of the Massachusetts board of education, has been the president of this college from its beginning. It has also 9 professors. There are connected with it in the collegiate department about 100 students, and about 400 in the preparatory department; and in each grade the male students are about three-fourths of the whole. At its first commencement in 1857 it graduated a class of 15, 8 of whom were young women. The funds by which this institution was founded were raised upon what is known as the scholarship system, and at the present time when the owners of scholarships are very likely to use their privileges, it has proved difficult to sustain a college upon that system. The result has been that Antioch college has been obliged lately to take steps toward a change of its pecuniary foundation from the system of scholarship to that of an unencumbered endowment. The large interest in education which the institution has excited in the West, and the sympathy felt for it by numerous friends in New England and New York, render probable its firm reestablishment.

ANTIOCHUS, the name of several kings of Syria. I. Surnamed Soter, or Savior, born about 325, died 261 B. C. He was the son of Seleucus Nicator and Apama, the daughter of the Persian satrap, Artabazus. At the battle of Ipsus, he commanded the cavalry of his father, and was routed by Demetrius Poliorcetes. A strange romance is told of him. He fell violently in love with his father's young wife Stratonice. His ungratified passion threw him into a dangerous illness. His Greek physician Erasistratus, on being questioned by Seleucus as to what was the matter with his son, confessed the truth,

and Seleucus generously abandoned to him Stratonice, and, soon after, abdicated a portion of his dominions in his favor. He joined his father in those expeditions into the countries lying between the Indies and the Caspian, which contributed so largely to the spreading of the Hellenic language and civilization. On the death of Seleucus in Macedonia (281 B. C.), he inherited all the dominions of his father. He soon lost Stratonice, and took one of her sisters. In his reign, a division of the Gauls who had ravaged Macedonia, Hellas, and Thrace, penetrated into Asia Minor, and settled permanently in Galatia. Antiochus gained a brilliant victory over them. As he owed this triumph to his elephants, he erected a statue of one of these beasts as a trophy. From this victory, he took the name of Savior. He prosecuted his claims to the throne of Macedon, in right of his father Seleucus, against Antigonus Gonatas, who claimed in right of his father Demetrius Poliorcetes. The matter was arranged between them by Antiochus allowing Gonatas to retain the Macedonian throne, on condition of his taking Phila, the daughter of Antiochus by Stratonice, to wife. He subsequently engaged in an unsuccessful war with Eumenes, king of Pergamus. Returning to Antioch, his capital, he put to death his eldest son, Ptolemy, who had revolted against him, and destined Antiochus Theos, his other son, to be his successor. He was killed by a Gaul near Ephesus. II. Surnamed Theos, or God, son and successor of the former and Stratonice, born about 300, died 246 B. C. Timarchus, a Syrian official, had revolted against the kings of Syria, and proclaimed himself tyrant of Miletus. Antiochus conquered him, and the Milesians, in gratitude, gave him the style and title of God. He continued, without success, the war his father had commenced against Ptolemy Philadelphus, king of Egypt. The Parthians, under Arsaces, revolted, and separated themselves finally from the Alexandrine-Greek kingdom of Syria. Thus commenced that great Parthian empire, which was afterward so formidable an enemy to the Romans. Theodotus revolted with the Bactrians, and declared himself king, and Antiochus, fearing for his throne, made a hasty peace with the king of Egypt, on condition of putting away his wife Laodicea, and taking in her stead Berenice, the daughter of Ptolemy. On the death of Ptolemy he put away Berenice, and reinstated Laodicea. The latter was unforgiving; she poisoned her husband, Berenice, and her child. III. Surnamed the Great, born about 238, put to death 187 B. C., son of Seleucus Callinicus and Laodicea. He succeeded his brother Seleucus Ceraunus at a time when his kingdom was in a disorganized condition. Attalus, king of Pergamus, had wrested all Asia Minor east of the Taurus from the Seleucids, and Ptolemy was pressing him in Phoenicia. Achæus, his cousin, saved him in this perilous crisis. Molo, governor of Media, and Alexander, governor of Persia, next revolted, and declared themselves independent kings.

B. C. 221. They defeated 2 armies sent against them, but were at last reduced by Antiochus in person, and put to death. He next reduced Artabazanes, the revolted governor of Atropatene. Achæus, finding that his young master had been alienated from him, now revolted and held the provinces which he himself had recovered from former rebels. The council advised the young king to march first against the king of Egypt, and to gain possession of those subjects of contention, Cœle-Syria and Palestine. After a temporary success, the Syrian king was totally routed at Raphia near Gaza, and made a treaty of peace resigning his claim to the two provinces. Having his hands free from war on the south-eastern flank of his dominions, he turned his arms against Achæus on the N. W., defeated him, and put him to death, and thus the provinces of Asia Minor were re-annexed to the Syrian monarchy (B. C. 218). Antiochus now followed up his ambitious scheme of restoring the Syrian monarchy to the position it held at the death of its founder Seleucus Nicator. He turned his arms first against Parthia, where the Arsacids had built up a powerful state. He was not able to break up the Arsacid monarchy, but reduced Arsaces to the condition of a powerful vassal, pledged to help his lord paramount when called upon. He was equally unsuccessful against Euthydemus, king of Bactria, whose predecessor, Theodotus, had revolted from Antiochus Theos. Crossing the mountains of Paropomisus (Hindoo-Koosh) into India, he made a treaty of alliance with the king of the Punjab, and directed his march homeward through the provinces of Arachosia, Drangiana, and Carmania, and reestablished the Syrian supremacy in those regions. This was the zenith of Antiochus, and for this 7 years' expedition, he received from his grateful subjects in the capital of Antioch, the name of Great. Soon after his return to Antioch, Ptolemy Philopater died, and his son Ptolemy Epiphanes, then 5 years old, succeeded to the throne of Egypt. Antiochus hereupon entered into an alliance with Philip IV. of Macedon, to overrun and partition Egypt, Palestine and Cœle-Syria were again the battle-field. Antiochus quickly gained possession of them. Upon his entry into Jerusalem, (198 B. C.) he was received by the Jews with great enthusiasm, granted them many privileges, especially ordaining that no foreigner should be permitted to demand access into the interior of the temple. While he was meditating further damage to Egypt, he learnt the defeat of his ally Philip by the Romans at Cynoscephala, and perceived that he would soon have to deal with them. He proposed a peace to Ptolemy on these terms: Ptolemy was to engage to marry Cleopatra the daughter of Antiochus, when he should come of age, and to receive as dowry the provinces conquered by Antiochus. Having thus purchased the neutrality of Egypt, he proceeded with a fleet along the coast of Asia Minor, reducing many of the Greek cities there. He then crossed the Hellespont and took pos-

session of the Thracian Chersonese (B. C. 196), which he claimed as having been part of the conquests of Seleucus Nicator from Lysimachus, Alexandrine king of Thrace. But the Romans had already reduced Macedonia to a vassal kingdom. The Roman senate sent an embassy to him to demand that he should restore what he had taken from Philip and Ptolemy, whose guardianship the Roman people had just assumed. They also demanded immunity for their ally Attalus, king of Pergamus. Antiochus replied that as he did not seek to interfere with what the Romans did in Italy, they must not trouble him in Asia. In the following year, 195, Hannibal, driven from Carthage, took refuge with Antiochus at Ephesus. Hannibal's advice was to carry the war immediately into Italy. It was disregarded, and Hannibal was looked upon with jealousy. Not until 192 did Antiochus move. Then he crossed over into Greece at the invitation of the Ætolians, who were in arms against the Romans. He brought only 10,000 men with him; was chosen commander-in-chief by the Ætolian diet, and began with the incredible folly of making Philip of Macedonia his enemy instead of his friend. After capturing Eubœa, instead of pressing forward, he wasted his time in treating about the surrender of a number of little cities, fell in love with an Eubœan damsel and married her, and spent the winter at Chalcis in a round of dissipation, in which his army shared. The Roman consul Acilius Glabrio, with Cato for his legate, now advanced upon him, and his unstrung, enervated army. He made a stand at Thermopylae, was entirely routed, and barely escaped with his new wife. The next year, Lucius Cornelius Scipio took the conduct of the war, with his brother Africanus as his lieutenant. Disheartened and panic-struck by the defeat of his fleet, Antiochus withdrew his troops from Sestos and Abydos, and the other fortified maritime cities of Asiatic Greece, which might have held the Romans in check. Thus they had free passage into Asia; the two armies met at Magnesia of Sipylus, that of Antiochus numbered 70,000 men, that of the Romans only 80,000. The Syrians were cut to pieces, and Antiochus was compelled to submit to whatever terms the Romans chose to impose. These terms were to resign the provinces west of Mount Taurus; to pay 18,000 Eubœic talents for the expenses of the war; to deliver up to the Romans his elephants and ships of war, and to surrender Hannibal and the other anti-Roman refugees. Hannibal and another saved themselves by flight, the rest were delivered up together with hostages for the execution of the treaty. One of these hostages was Antiochus Epiphanes, the king's younger son. In collecting means to pay the indemnity, he plundered a wealthy temple in the Median province of Elymais. The indignant people rose and massacred him and his attendants. IV. EPIPHANES or the Illustrious, the second son of the preceding, succeeded his elder brother Seleucus Philopater, B. C. 175. His

father had sent him to Rome as hostage for the execution of the treaty of Magnesia. He there had the advantages of a Roman education. His brother sent his own son Demetrius to replace him. He made war upon Egypt to recover the provinces of Cœle-Syria and Palestine, the dowry of his sister Cleopatra, who had died. He recovered them in the first campaign. Next year he overran all Egypt except Alexandria, and took captive the young king Ptolemy Philopater. In the same year, he sacked Jerusalem, and plundered the temple, as related in the book of the Maccabees. He undertook no less than 4 expeditions into Egypt, and would have annexed that country had not the Roman ambassadors met him on the last occasion, and ordered its immediate evacuation. Popilius, whom he had known at Rome, was at the head of the deputation. Antiochus advanced to meet him and offered his hand. Popilius declined, and commenced reading the tablets on which were written the orders of the senate. Antiochus having promised obedience, the Roman shook hands with him. On his return home, B. C. 168, he vented his chagrin upon the Jews, and commenced that great persecution which is related in the 2d book of the Maccabees, during which time the service in the temple was broken off for the space of 8 years. He set up the statue of Titus Olympius there, and desired to introduce the worship of the Greek deities. This proselyting zeal was thwarted by the insurrection of Mattathias and the Maccabees. The patriotic resistance of the Jews was successful. With the revolted Persians and Armenians he was more fortunate. In Media, he plundered the temple of Elymais, and soon after this, died. The Jews refer his death to a judgment of God upon his sacrilege toward the temple at Jerusalem, the Medes and Persians are equally positive that it was a judgment for the sacrilege done to their sanctuary at Elymais. His subjects called him, in parody on his name Epiphanes, Epimanes, the madman. This reputation he earned by many freakish acts. He would run about the streets of Antioch, visiting the goldsmiths in their shops as he had done at Rome; he would drink with anybody and everybody, like the prince Hal of Shakspeare; he would go into the market-place without his robes, and imitate the electioneering practices he had seen at Rome, pretending that he was a candidate for the office of edile or tribune of the people. Sometimes he would rush out among the crowd with a handful of gold-pieces, and cry "scramble;" at other times, he would have his lap full of stones, and when the crowd would crush round him, pelt them. The Syrian monarchy, from this time forth, is of little importance even in the East.

ANTIOCO, an island near the S. W. coast of Sardinia, 8 miles in length, and 3 in width. It is very fertile. Pop. 2,219.

ANTIOPE, the mother of Zethus and Amphiion by Zeus, was daughter of Nycteus, king of Thebes. Lycus, the successor of Nycteus,

having slain her husband, Epopeus, king of Sicily, carried her prisoner to Thebes, where she was treated with extreme cruelty by his wife, Dirce. Her sons avenged her by killing her persecutors and capturing Thebes.

ANTIPAROS, anciently **OLIAROS**, a small island of the Grecian archipelago belonging to the Cyclades. It lies between the islands of Paros and Liphanto, and is about 7 miles in length and 8 miles in breadth. It is a mass of marble rock, covered with a moderately fertile soil, which produces cotton, wine, and corn enough to support its inhabitants, consisting of some 500 souls, who live in a wretched village near the shore, and who are chiefly engaged in fishing and agriculture. This island would hardly be worthy of notice were it not for the magnificent stalactite cavern near its southern extremity. The entrance to this cavern is a long, narrow, and often precipitous passage, which is traversed by means of ropes that are either held by some of the natives, or joined to a cable secured to a pillar at the outside. On arriving at the interior end of this passage the spacious chambers of an enchanted grotto present themselves to view, whose roof, floor, and sides are covered with a dazzling incrustation as white as snow. Columns, some of which are 25 feet in length, hang like icicles from the roof, while others extend from roof to floor. It is brilliant and splendid beyond description.

ANTIPAS, **HEROD**, the son of Herod the Great and Cleopatra. He was a native of Jerusalem. His father originally intended him as successor to the entire kingdom of Cœle-Syria, but for some reason changed his purpose, and gave the kingdom to Archelaus, another son, and assigned to Antipas the tetrarchy of Galilee and Perea. Entering upon his tetrarchy, he married the daughter of Aretas, king of Arabia, but afterward divorced her and married Herodias, the wife of his brother then living. This involved him in a war with Aretas, and was also the first step toward the indulgence of the passion which resulted in the imprisonment and beheading of John the Baptist. Herod Antipas was in the main a good tetrarch, devoting himself to the interests of his subjects. He built the city of Tiberias, and adorned and fortified many other places in his province. He was finally banished to Gaul (A. D. 39) by Caligula, on suspicion of being concerned in the conspiracy of Sejanus. It was before this Herod that Pilate sent Jesus (Luke xxiii.)

ANTIPASCHIA. The Easter festival kept in memory of the resurrection of Christ was by the Latins called pascha. The Sunday after Easter is hence denominated antipaschia.

ANTIPATER. I. A Macedonian general, one of the successors of Alexander, born about 390, died 317 B. C. He was educated by Aristotle, and enjoyed the complete confidence of King Philip of Macedon. When Alexander made his expedition into Asia he left Antipater behind him as viceroy of Macedonia and Greece.

He soon had occasion to exert himself. An attempt was made by Lacedæmon, Achaia, Elis, and the greater part of Arcadia, to drive the Macedonians out of the Peloponnesus. Antipater marched into Arcadia and met the Lacedæmonian army before Megalopolis. He inflicted a decisive defeat upon the Spartans, Agis, their king, being slain. He also had trouble in Macedonia. Olympias, the mother of Alexander, succeeded, in the latter days of the conqueror's life, in sowing in his mind a distrust of Antipater, and Alexander actually sent Craterus home from Asia with a body of discharged troops to supersede him in the home government. Fortunately for Antipater, Alexander died, and this order was never executed. At the division of the empire, Antipater received, as his share of the administration, Macedonia and Greece, and the guardianship of the future child of Roxana. Soon after the birth of this child, named Alexander Aëgas, Roxana and her son passed over from Asia into Europe, and put themselves in the protection of Antipater. Immediately on the death of Alexander becoming known, the Athenians determined to strike again for the liberty of Hellas, and made a wide-reaching alliance with the Ætolians, Thessalians, and all the Greeks north of the isthmus except the Boeotians, and with the Peloponnesians who were not of the Lacedæmonian party. Leosthenes, the commander of the allied army, an Athenian, posted his forces at Thermopylæ, and Antipater advanced with his Macedonians to quell the revolt. Alexander had drained him of troops, and the Hellenes defeated him and shut him up in Lamia, a town of Thessaly. Leonnatus was the first Alexandrine general who advanced to the aid of Antipater from Hellespontine Phrygia. He was defeated, but the remains of his army joined that of Antipater. Craterus arrived from Asia with another reinforcement of 12,500 men. Antipater having now 48,000 men, and being largely superior in force to the weakened and ill-cemented Hellenic army, gave them battle at Crannon (323 B. C.). The battle was indecisive, but the allies sued for peace. Antipater refused to treat with them collectively, but expressed his readiness to treat separately. This had the desired effect; all the minor Greek states came to terms, leaving the Athenians and the Ætolians unsupported to bear the brunt of the Macedonian's vengeance. Antipater used his victory with moderation; he demanded the surrender of Demosthenes and Hyperides, the 2 democratic orators, and the uncompromising foes of the Macedonian power. He also put a Macedonian garrison in Munychia to act in concert with Phocion and the Athenian conservative party. Thence he broke up the democratic constitution of Athens, and left the government in the hands of about 9,000 citizens who were possessed of a property qualification, and were disposed to peace. Thus ended the Lamian war (323 B. C.) Antipater next turned against the Ætolians, drove

them into their mountains, and starved them into submission. On him fell the duty of checking the designs of Perdiccas, who was aiming at universal dominion, but before he had reached Asia with his army, Perdiccas was assassinated in Egypt. Antipater made a new division of the provinces, giving a part of the territory of Perdiccas to Antigonus, part to Lysimachus, and part to Seleucus. He continued to exercise great power and influence until his death in 318 B. C., at the advanced age of 81. II. Grandson of the preceding, for a short time king of Macedonia, died 292 B. C. He was the second son of Cassander and Thessalonica, the sister of Alexander the Great. On the death of Philip IV., Antipater and his younger brother Alexander disputed for the throne of Macedon. Antipater, thinking that his mother favored the pretensions of his younger brother, put her to death, which deed prejudiced the Macedonian nation against him. Alexander called in the aid of Pyrrhus, king of Epirus, and Antipater fled to Lysimachus, king of Thrace, whose daughter he had espoused. As he was insolent, the Thracian king put him to death. III. Died 48 B. C.; son of Antipater, governor of Idumæa, was himself governor of that province during the high-priesthood of Alexander Jannæus. He espoused the cause of Hyrcanus against his brother Aristobulus. When, during the siege of Alexandria, Julius Cæsar was hemmed in by the inhabitants of that city, Antipater came to his aid, and rendered good service to the Romans. Cæsar, in return, obtained for him the dignity of Roman citizenship, and appointed him procurator of Judæa. He was poisoned by Malchus, a Jew whose life he had twice saved. IV. Eldest son of Herod the Great by his first wife Doris, brought about the death of his 2 half-brothers, Alexander and Aristobulus, in B. C. 6, but was himself condemned before the tribunal of Quintilius Varus, Roman governor of Syria, for compassing his father's death, and executed. V. ANTIPATER of Sidon, the author of several epigrams in the Greek anthology, flourished about B. C. 100. VI. Of Thessalonica, the author of several epigrams in the Greek anthology, lived in the reign of Augustus and Tiberius Cæsar. VII. LUCIUS CÆLIUS, a Roman jurist and historian, and the contemporary of Caius Gracchus (B. C. 123). He wrote a history of the second Punic war.

ANTIPATHY (Gr. *ἀντίπαθεια*, compounded of *ἀντί*, against, and *πάθος*, feeling), is commonly defined to be an involuntary dislike or aversion of an animate being for some sensible object; but in many cases the word is applied to inanimate nature, as to oil and water, which are incompatible or immiscible substances. It is commonly applied, however, to a certain class of exceptional feelings in individuals; such as a spontaneous dislike of cats or dogs, spiders, toads, and rattlesnakes; or peculiar odors, savors, colors, sounds, and forms. Attraction and repulsion, sympathy and antipathy, compe-

tibility and incompatibility, likes and dislikes, are words often used as synonymes in their contrasted signification, but without scientific accuracy, or definite limitations in common language. Attraction and repulsion are mostly used with reference to material gravitation and cohesion; compatibility and incompatibility apply equally to inorganic and organic nature; sympathy and antipathy, likes and dislikes, refer mostly to the feelings of animated beings with reference to things animate or inanimate. One person dislikes cats; another dislikes mice, and shudders at the sight of the small, inoffensive nibbler; many ladies dislike spiders near their persons; and most Europeans dislike serpents, while eastern nations seem to experience no such feeling of antipathy. Some persons cannot bear the rank smell of cheese or garlic; others have no aversion to the smell or taste of either; one kind of perfume is extremely pleasant to some individuals, and intolerable to others. Brass instruments make pleasant music to some ears, and jar the nerves of hearing in others; soft velvet is agreeable to the touch of some, and unpleasant to others; bright glaring colors please the eye of one, and call up feelings of aversion in the breast of another. *Des goûts et des couleurs on ne doit disputer*, say the French; and all nations have similar sayings with regard to differences of taste, and peculiar feelings of antipathy. It is sometimes said that mice have a natural antipathy for cats, sheep for wolves, hares for hounds, antelopes for lions, pigs for serpents, ferrets for rabbits, dogs for rats, &c., but these are not antipathies, properly so called; they are repulsive feelings of a stronger nature. There are, no doubt, different degrees of antipathy, and some of them amount to a repulsive feeling, such as the hysterical dread of spiders crawling up the legs or down the back; but the latter may be partly overcome by habit, while the true antipathy, though less repulsive in effect, is deeply rooted in the constitution, and can never be eradicated thoroughly. Antipathies, properly so called, belong to things of one species or one genus; beyond these limits, feelings of aversion are more deeply incompatible, and even hostile in their nature. Cats may have antipathies for dogs of their own size; but they have deadly feelings of destructive excitement against mice.—Music is a proper key to the definitions of sympathy and antipathy, as distinguished from hostility, aversion, and revulsion. The key-board of a pianoforte displays a regular gradation of notes, in half a dozen or more octaves, and the consonant and dissonant degrees of distance show where consonance and sympathy exist, and also where antipathy and dissonance begin. The reasons for these accords and discords in music are well explained by the science of acoustics and the ratio of vibrations. Tonics agree with octaves, thirds, sixths, fifths, and fourths; with seconds and sevenths they disagree. Similar reasons

will explain all kinds of natural sympathy and antipathy in man's feelings. Differences of complexion, stature, temperament, &c., follow the same laws of sympathy and antipathy between the sexes. There we find sympathies of identity and sympathies of contrast, with antipathies of neighboring degrees of difference. Tall men often like short women, but a man of 5 feet 6 feels some innate antipathy for a woman 5 feet 10; although he may admire her moral nature. A dark man fancies a fair woman, or a woman of his own complexion; and so of woman with regard to man; but a yellow-haired woman with a faultless skin, would not fancy the complexion of a thickly-freckled face and rusty red-haired man; nor would a man with flaxen hair and pure white skin be strongly drawn toward a woman whose complexion was a very doubtful auburn, and whose face was a mosaic of brown freckles. Nature seems to regulate the laws of harmony and discord, sympathy and antipathy, according to degrees of nearness and of distance on a scale of general gradation throughout all her realms of inorganic and organic forms, in all varieties of beings and of things, animate and inanimate. These laws affect the physical, the mental, and the moral nature of mankind; and hence we may account, to some extent, for sects and parties in politics, religion, and philosophy; and even in the arts and sciences. For as the nerves of the body are affected pleasantly by one peculiar flavor or odor, in one temperament, and most unpleasantly by the same sense of taste or smell in a different variety of constitution and complexion, though equally true and good in either case; so artistic views of what is beautiful or not, and intellectual appreciations of what is true or what is false in politics, philosophy, and religion, may be equally dependent on inherent constitution and the difference between one nature and another. And, moreover, as boys of 15 grow to be 18, and experience new feelings and attractions, while their former notions and amusements gradually fade away; so many minds now satisfied with certain views of policy and doctrine, may by degrees outgrow them, and become enamored of still higher modes of thought and feeling, life and duty, which before seemed strange and hardly worthy of attention. Many worldly minds despise the simplest truths of man's immortal nature; and to gain the goods of this life, risk the loss of those which lie beyond. Antipathies of this kind may be only temporary; while other kinds seem ruled by laws which are eternal.

ANTIPHILUS. I. Of Egypt, a celebrated painter who lived in the latter part of the 4th century B. C. In his youth he went to Pella, where he painted portraits of Philip and Alexander. His latter days were passed in his native country, where he enjoyed the patronage of Ptolemy, son of Lagus. The chief characteristic of his style, according to Quintilian, was a light and airy elegance. II. Of Byzantium, a writer

of epigrams, who lived in the 1st century of the Christian era. Many of his epigrams still survive, and they are generally excellent both as regards style and conception.

ANTIPHON, a short verse said or sung at the beginning and end of a psalm or collection of psalms in the offices of the breviary.

ANTIPHON, an Athenian orator, son of Sophilus the sophist, born at Rhamnus in Attica, B. C. 480. After completing his education, Antiphon opened a rhetorical school at Athens, and also applied himself to the composition of orations for such as wanted to accuse others, or defend themselves in the courts or the assembly. If Antiphon was not the inventor of political and juridical oratory, he was at least the first who subjected it to the rules of rhetoric, and raised it to the rank of an art. Though a man of great eloquence, he never appeared as a public speaker except on that memorable occasion when he came forward to clear himself from the charge of treason, and to justify the part which he had taken in the revolution that had established the government of the 400 at Athens. We know in fact almost nothing of his political life save what is connected with the events of that revolution. He it was that planned it—that framed the new constitution—that most contributed to the overthrow of the democratic party. When, therefore, that party recovered power, it was on him that the weight of their vengeance fell. He was then brought to trial, and, notwithstanding the extraordinary ability with which he defended himself, was condemned to death as a traitor, compelled to drink the fatal hemlock, and even denied a burial in Attic soil. He suffered in the year 411 B. C. There are still 15 of the orations of Antiphon extant. His language is correct, his phraseology perspicuous, his arguments convincing, but there is a stiffness about his style which makes it appear inharmonious after the flowing periods of Isocrates. The best edition of the orations of Antiphon is that of Dobson, published at London in 1828.

ANTIPHONY, the response which, in the Roman Catholic service, one side of the choir makes to the other, in the chant. Antiphonal or responsive singing is the most ancient form of church music, and is said by the historian Socrates to have been first introduced among the Greeks by Ignatius, and among the Latins by St. Ambrose. The chanting of the psalms alternately is doubtless older than Christianity, and prevailed in the temple service of the Jews, many of the psalms being composed in alternate verses as if with a view to this mode of singing. In the cathedral worship of the Catholic church, two full choirs are stationed one on each side of the sanctuary, one of which, having chanted a verse, remains silent, while the opposite choir replies in the verse succeeding; and, at the end of each psalm, the *Gloria Patri* is sung by the united choirs in chorus.

ANTIPIHRASIS is the description of a thing by its opposite, as when Antiochus who killed

his mother is called Philometer, or the mother-lover.

ANTIPODES, a word said to have been invented by Plato, and signifying opposite feet,—a geographical term for persons who live at the opposite ends of a diameter of the earth. Several similar compound words have been invented to express different geographical relations; but antipodes is the only one in common use, preserved by the paradoxical nature of the idea of persons living thus upside down to each other. —ANTIPODES, a small island in the south Pacific south-east of New Zealand. It is so called because it is the nearest land to the antipodes of Greenwich, lat. 49° 32' S. long. 178° 42' E.

ANTIPOPE, a term applied by the Roman Catholic church to those persons who claimed to have been elected by the suffrages of the cardinals, but whose claims were for some reason not deemed valid by the church. Novatian, the founder of the sect of Novatians, was the first antipope, and procured his election to the see in 362 by 8 bishops in opposition to Cornelius. Amadeus VIII., a duke and layman, was the last antipope, under the name of Felix V. (1431). According to Petau's *Rationarium Temporum*, there have been 14 antipopes. The factions which elected them were sometimes political, and sometimes religious.

ANTIQUARY. The word *antiquarius* appears from Isidore (Orig. vi. 14) to be synonymous with transcribers of old manuscripts, and the *domus antiquariorum* in monasteries seems to have been the apartment appointed to such purposes. The present occupation of antiquaries, however, is to collect and prepare materials for the historian. Preserving records, coins, pamphlets, caricatures, and many other things that to the ignorant and unreflecting seem too insignificant to be preserved, they rescue many a precious proof of the facts of history from destruction, seeking out in all the corners of the land those things which, if once lost, can never be replaced, and which sometimes are increased greatly in value by being brought together into one place. The historical societies which now exist in many of our states are necessarily largely antiquarian in their character, and through them have already been preserved many documents of great historical value, and many most interesting records of the past which a little longer neglect would have doomed to entire destruction. It has well been said, "that the most insignificant tract, the most trifling essay, a sermon, a newspaper, or a song, may afford an illustration of manners or opinions elucidatory of the past, and throw a faithful though feeble light on the pathway of the future historian." The objects of antiquaries are thus quaintly set forth in a paper drawn up by a member at the inception of the royal society of antiquaries of Great Britain: "Such a society will bring to light and preserve all old monumental inscriptions, &c. Architecture, sculpture, painting, engrav-

ing, music, will come under their consideration; and, the ancient methods being restored, many things may be used afresh. They will explain obscurities, not only in our own, but in Greek and Roman authors. A correspondence might be maintained through England and abroad, to inspect books and manuscript, to draw ancient fortifications, castles, churches, houses, tombs, inscriptions, epitaphs, painted glass, &c., and, if need be, to buy up the most curious for the society. This establishment, their library and repository, would be an ease and satisfaction to the officers of state and to foreigners that attend their meetings; a seminary and school for learning the ancient constitution, laws, and customs of this kingdom; and to promote trade, manufactures, &c." Our own historian Prescott, in his "Conquest of Mexico," after speaking of Don Juan de Zumarraga, the fanatical destroyer of so many precious Mexican picture-writings, says: "The unlettered soldiers were not slow in imitating the example of their prelate. Every chart and volume which fell into their hands was wantonly destroyed; so that when the scholars of a later and more enlightened age anxiously sought to recover some of these memorials of civilization, nearly all had perished, and the few surviving were jealously hidden by the natives. Through the indefatigable labors of a private individual, however, a considerable collection was eventually deposited in the archives of Mexico; but was so little heeded there that some were plundered, others decayed piecemeal from the damp and mildews, and others again were used as waste-paper! We contemplate with indignation the cruelties inflicted by the early conquerors. But indignation is qualified with contempt, when we see them thus ruthlessly trampling out the spark of knowledge, the common boon and property of all mankind." It is only after experiencing the bitter but unavailing regret that must fill the heart of every intelligent man after reading of such things as these, that one appreciates the importance of antiquaries and antiquarian societies not only to communities, but also to mankind.

ANTIQUUS, JAN, a Dutch artist, born at Groningen, Oct. 11, 1703, died in 1750. In his youth he spent many years in Italy among the works of the old masters. Returning to Holland, the prince of Orange settled a pension upon him. He was as industrious as he was skilful.

ANTI-RENTISM. The Dutch West India company, in order to promote the settlement of the country in New Netherland (now New York), authorized its members to take up land upon the banks of the streams and rivers, 16 miles on one side or 8 miles on each side, and so far back as might be convenient, on condition of introducing, within a limited time, 50 settlers for every mile of land. The proprietor was invested with the title and privileges of a lord patroon or protector, and his colony or manor was governed by the same customs

and laws as were the feudal manors of the United Provinces. A large number of manors were created under the Dutch, and subsequently under the English colonial government, and existed at the outbreak of the American revolution. The feudal system of Europe was thus transplanted to the new world. After the revolution, a very large proportion of the land in the settled parts of New York was held by the patroons, and the cultivators occupied their farms on leases, for one or more lives, or from year to year, stipulating for the payment of rents, dues, and services, copied from the feudal tenures of England and Holland. Almost every incident of the tenures in socage and villeinage were imposed by contract upon the manorial tenants. Purveyances, preëmption, fines for alienation, banalities, base services, and other similar conditions, burdened most of the farms. In 1779 and 1785, laws were enacted by the legislature of the state abolishing feudal tenures, but the proprietors of manor grants unwilling to give up all their feudal claims, contrived a form of a deed by which the grantees covenanted to perform services, and pay rents and dues, precisely similar to the feudal incidents thus abolished. The counties of Albany, Rensselaer, Columbia, Greene, Ulster, Delaware, Schoharie, Montgomery, Herkimer, Otsego, Oneida, include within their limits most of these manors. The people who had settled in these counties, had long been dissatisfied and restive under the feudal exactions imposed upon them, and in 1839 began to consult together about some plan to throw off the burden. Associations were formed in these counties, and delegates appointed to meet and deliberate for the general welfare. The local societies thus formed soon became known as anti-rent associations. Ere long, the people became more and more engaged and excited, and the anti-rent feeling manifested itself in open resistance to the service of legal process for the collection of manorial rents. A secret organization was devised, extending through several counties, by which bands of men were formed, and pledged upon summons to appear disguised and armed, and ready to protect the persons of the tenants from arrest, and from the service of process, and to guard their property from levy and sale upon execution. So soon as a sheriff appeared in one of the disaffected towns, a troop of men collected in fantastic calico dresses, and with faces masked, or painted to imitate Indians, and armed with pistols, tomahawks, guns, and cutlasses, and generally on horseback, gathered around him, or hovered near, warning him away and deterring him by threats from performing his duty. In Columbia, Rensselaer, Albany, and Delaware counties, during the years 1844 and 1845, large assemblages of men so armed and disguised were accustomed to meet to hear speeches, and to pass resolutions. The leaders and sachems assumed Indian names, such as Big Thunder, Little Thunder, Blackhawk, &c., and the highways and villages became familiar

with their antics and whoopings. A conflict between them and the civil authorities was inevitable. The complicity of some officers, and the timidity of others, emboldened the disguised bands, and their audacity and fancied impunity from recognition and arrest led them to appear often in the roads, and to more open demonstrations of their numbers and power. Citizens who disapproved of their conduct were now subjected to insult in the streets and at their houses, and bad and violent men, under cover of these disguises, sought occasion to gratify their passions in acts of reprisal or revenge upon persons who had incurred their enmity. The first conflict which awakened general attention to the state of affairs, happened in the town of Grafton, in Rensselaer county. A troop of the calico Indians riding along the highway, met a man named Smith, driving a team with a load of wood. Smith had been outspoken in denunciation of their proceedings, and they bore him no good will. An altercation ensued, and Smith, a man of coarse nature and violent passions, raised his axe to strike at some one of his assailants, when a pistol shot from an unknown hand prostrated him to the ground. He died in a few minutes. The men in disguise dispersed. A legal investigation, at which more than 200 persons were from time to time examined, failed to disclose the author of the deed, and to this day it is not known who fired the fatal shot. Subsequently, at a mass meeting at Sleepy Hollow in Columbia county, a pistol, accidentally fired, killed a boy of the name of Riesenbergh. In 1845, a deputy sheriff of the name of Steele, who had accompanied the sheriff of Delaware county to the town of Andes, to attend a sale of goods upon execution for rent, was killed. A large number of persons were indicted for the murder, but, as the act of killing could not be brought home to any individual, verdicts of manslaughter were found against several persons proved to have been present armed and disguised.—Previously to this fatal transaction, the sheriffs of Rensselaer and Albany counties had each been openly and threateningly resisted in the exercise of their duties, and the military force of the county had once, in Rensselaer, been called out to aid the officer in the service of process in the town of Nassau, and once in Albany county, for a like purpose in the town of Rensselaerville. A rude system of telegraphing gave warning in all the towns of the approach of an officer, and from all quarters came flocking the mimic Indians, as rapidly and mysteriously as the gathering of Clan Alpine at the summons of Roderic Dhu. The legislature of 1844 passed some laws against appearing disguised and armed, and imposed severe penalties upon such as should violate the law, or in such disguise resist due service of process, or interfere with the civil officers in the exercise of their duties. In his message of 1841 and 1842, Gov. Seward had alluded to and discussed the grievances complained of by the tenants. He recommended a

reference of the matters in dispute to arbitrators. He appointed three men to investigate the questions in dispute, to hear the parties by their witnesses and counsel, and to make report to the legislature. This commission failed to accomplish any thing. The disaffection and excitement increased, owing to the obstinate and unyielding exactions of the landlords and the factious and illegal acts of the tenants, until finally the tragedy at Andes brought matters to a crisis. Gov. Wright issued a proclamation, declaring Delaware county in a state of insurrection, and for months the village of Delhi was a military encampment, and squads of soldiers perambulated the county making arrests, and frightening the good people into obedience to the laws. The trials and convictions at Delhi, and the convictions of certain anti-renters at Hudson for conspiracy and resistance to law, put an end to operations by the self-styled Indians. The anti-rent associations determined to form a political party, whose policy should be to elect all town and county officers from their own ranks, and to vote for no state, civil, judicial, or executive officers, unfriendly to them, or unpledged to their cause. In the legislatures of 1842, '3, '4, '5, '6, and '7, about one-eighth of the members were elected in the interest of the anti-renters. In the constitutional convention of 1846, some of the ablest men were avowedly anti-renters, or advocates of their measures and principles. Their influence procured the insertion of a clause in the new constitution, abolishing all feudal tenures and incidents, and forbidding the leasing of agricultural land for a term exceeding 12 years. The legislature, at successive sessions, passed laws which bore heavily upon the landlord interest, and tended gradually to ameliorate the condition of the tenants. In 1846, Gov. Wright, who was a candidate for reelection, was defeated by 10,000 majority for John Young, whom the anti-renters had nominated. The policy of voting for their friends without regard to former political opinions, exerted a marked influence over politicians, and the anti-renters have since been able to command a patient hearing in the legislature and the courts. Gov. Young pardoned from the state prison all the so-called anti-rent convicts, on the ground that their offences were rather political than criminal, and that it was the wise policy of all good governments to forgive and restore to citizenship political offenders, after the law had been vindicated and order and peace restored. Since 1847, no single instance of resistance to law or the service of process has occurred, the excitement which threatened the peace of the community has died out, the anti-rent influence is no longer felt as a disturbing force in politics, and the anti-rent organization contents itself with lawful efforts to contest in the courts the validity of the titles of the landlords, and the legality of the conditions and covenants contained in the manor grants. Hundreds of suits are pending in the

courts, in which every legal objection to the manor grants is raised. Already the court of appeals has decided that the quarter sale reservation, or covenant, is a feudal incident, abolished by the law concerning tenures, passed Feb. 20, 1787, and therefore void. The remaining covenants and conditions reserved in grants in fee will be brought to the same test. The anti-rent excitement, which at one time assumed the formidable type of insurrection, and foreboded rebellion and civil war, has expended itself in legitimate political action, and will end in a peaceful solution of all its difficulties in the courts of law.

ANTISABBATARIANS, a sect of Christians, who maintain that there is no obligation to observe the Sabbath. Their reason for this is, that the Sabbath is a Jewish institution, and that its observance is not commanded in the New Testament.

ANTISCORBUTICS (Lat. *anti*, against, and *scorbutus*, a barbarous word, intended as the Latin for scurvy), remedies against scurvy. The word scurvy is popularly, though with little correctness, applied to certain forms of disease, in which there is chronic irritation of the skin, with desquamation, or a peeling off of the dry scaly surface of the cuticle; the common name of these dry scales being scurf; hence the word scurfy, or scurvy, to designate this class of affections. This kind of scurvy is common amongst ill-fed, ill-clothed, uncleanly, and debilitated populations, and is often the forerunner of consumption. It is akin to leprosy, and was formerly more common than it is at present, amongst the working classes of European nations. Like scrofula, it is the result of a debilitated constitution, especially of weakness in the blood-making organs; but it seems to be more purely the result of long-continued physical privations, uncomplicated by disease, than scrofula, which would seem to be, not only the inheritance of poverty, but of excess and vitiated constitutions, during ages. In these diseases, the blood is badly made, especially where surrounding circumstances are unfavorable; and the proper mode of treatment is to secure good animal and vegetable food easily digestible, and often varied; good air and sunlight, water, cleanliness, and clothing; avoiding all fatigue, but using moderate exercise in the open air, continually. Vegetables belonging to the family of the *crucifera*, such as radishes, and cress, cabbage, spinach, mustard seed, &c., are deemed highly advantageous in this class of diseases; but discrimination is required with regard to quantity and quality; for in some cases, especially of a scrofulous nature, animal food of the best kind is essential, with a small comparative proportion of vegetable and farinaceous food; and, in all cases, large quantities of turnips and cabbage, and the common sorts of vegetables, with common bread, and beans, and farinaceous food, ill-cooked and difficult to digest, are not enough to support life and in-

crease vitality in such debilitated constitutions. In scrofula, tonics and good animal food are essential elements of cure; in common scurvy, of a leprous kind, good food, light wines, bitters, and vegetables of the mustard, cress, radish, cabbage, and lettuce kinds, arranged in salads with good olive oil, and never taken in large quantities at once, so as to oppress the digestive organs, are the real antiscorbutics, although the vegetables of the tribe of *crucifera*, such as horse-radish, mustard seed, cress, cabbage, &c., are often classed, alone, as "the antiscorbutics" *par excellence*.—We now come to a special form of disease called scurvy, of which the origin, cause, and cure are more defined and better known; it has been called sea-scurvy, to distinguish it from "land-scurvy." Sea-scurvy was formerly the scourge of a seafaring life. Bad food, exposure, and fatigue, engendered the disease, and often sailors, who made long-protracted voyages, fell in large proportions victims to this dire disease. In 1593, Admiral Hawkins stated that, within his personal experience, not less than 10,000 seamen had died of scurvy. Lord Anson, in the course of his voyage round the world, at a much later period, lost more than four-fifths of his men; and, when he arrived at Juan Fernandez, of the 200 men then surviving, only 8 were capable of duty. An entire crew has sometimes perished of scurvy, leaving the ship without a single hand to steer it through the waters. The whole crew of the Spanish ship *Oriflamme* perished in this manner, and the vessel was discovered floating at the mercy of the winds, with the dead bodies on board.—Sea-scurvy was produced by a combination of unfavorable circumstances, formerly not understood. One of the most powerful causes of debility is constant exposure to a cold and damp atmosphere. The construction of ships was formerly such that sailors were continually exposed to unwholesome exhalations from the bilge water, the sand used as ballast, and the remains of animal and vegetable matter strewed about the ship. From the imperfect means of ventilating the ship, or washing it, without increasing the dampness, no means of cleanliness were organized. The sailors were unprovided with soap, and inattentive to personal cleanliness. They were at times subject to excessive labor and fatigue, and often exposed to calms and want of even moderate exercise. The diet of seamen during long voyages consisted almost exclusively of salt meat and hard biscuit, with very bad water. And even this was often scarce and insufficient. Fresh animal food and vegetables could not be obtained at sea. The diminution of the quantity of food was found, in 1819, to be the principal cause of scurvy in the Milbank Penitentiary; but seamen were constantly exposed to inferior quality, as well as insufficient quantity, of food in former times. Salt meat is also less nutritious and more indigestible than fresh animal food. Taken in moderation, salt facilitates

digestion, but in excess it hinders the digestion, even of fresh animal food and vegetables. Bad food, exposure, and fatigue, then, impoverish the blood and bring on scurvy.—Under the influence of these concurring causes, an individual begins to lose his natural and healthy color; the skin of the face first, and afterward that of the whole body, becomes pale and bloated; the lips acquire a greenish hue; the countenance is very much depressed, denoting a like state of mind. In this state of depression, the patient becomes weary and averse to labor. When moderate exertion, even, is attempted, weakness is felt in the whole muscular system, and particularly in the knees, which sometimes become stiff and contracted. The breath is hurried and oppressed by walking fast, or by the least effort. The skin is dry, sometimes rough and scurfy, but oftener smooth and shining, with spots of a red, or dingy blue, or dark appearance arising from the stains of coloring matter exuded from the blood-vessels under the cuticle. The gums become swollen and spongy, the limbs cedematous; cuts and scratches bleed profusely, and cannot be healed. Old sores break out anew, and broken limbs, well united, separate again, and cannot be reunited, as long as the disease continues. The appetite is generally good, but great debility is manifest in every portion of the organism; and this debility arises from an alteration of the blood, produced by long privation and exposure.—Good fresh food of every kind, and other conditions of health and comfort, are necessary to produce good blood; but certain vegetables seem essential to prevent that peculiar degeneration of the blood which causes scurvy. In what way an inadequate supply of fresh vegetables operates in causing this disease, is yet a matter of discussion; but the fact is established by experience. Many eminent physicians, of the present day suppose that it is due to the absence of potash in salted meats, and other comparatively innutritious articles of diet, while the common antiscorbutics afford a large supply of that substance. Before the extensive introduction of esculent vegetables in Great Britain, scurvy was almost as common on land as at sea; and it is still, in a modified form, common in the most impoverished parts of Ireland, where bad potatoes form, almost exclusively, the diet of the poorest people. It is also proved by the rapid disappearance of scurvy from among the crews of ships, so soon as they procure a due supply of vegetable articles of diet, of any kind, but more particularly those of an acid nature, such as oranges, lemons, &c., belonging to the tribe of the *aurantiacea*, and those of the *grossulariacea* or gooseberry tribe. The *crucifera*, or mustard and cress, cabbage and scurvy-grass tribe, although, alkalescent vegetables, are very good; and so is spruce, which is derived from some of the *conifera*.—These vegetables, or preparations made from them, constitute the antiscorbutics, properly so called, or means of preventing and curing sea-scurvy. They are

not, however, equally valuable as antiscorbutics, some of them being more efficient than others. Those are the least valuable in which no vegetable acid greatly predominates. The *crucifera* are not so useful in their natural state as the name scurvy-grass would indicate; but sour-kraut, made from one of them, the cabbage, undergoing fermentation, and thus producing vegetable or acetic acid, a kind of vinegar, becomes an important antiscorbutic; and hence, perhaps, the frequent use of it in Germany. The tribe of the *hesperida*, or *aurantiacea*, produce the best class of antiscorbutics, as they contain citric acid; and the best of these belong to the genus *citrus*, especially the *citrus limonum*, the well-known lemon. Since the introduction of this, for general use, into the British navy in 1796, scurvy has almost ceased. It may be used in various ways. The best is to let the patient suck the fresh fruit; but where this cannot be done, lemon-juice, mingled with one-tenth portion of spirits of wine, to preserve it, may be given; and this is the mode usually adopted in the navy. About a fortnight after leaving port, each sailor is supplied daily with an ounce of lemon-juice, and an ounce and a half of sugar, to mix with his wine or grog. This is usually enough to prevent scurvy from affecting any of the crew; but where symptoms show themselves, they quickly disappear by an increased allowance of the quantity of lemon-juice. Vinegar, tartaric, malic, and other vegetable acids, are not so useful as lemon-juice, but unripe gooseberries, tamarinds, &c., are the best substitutes for lemons, when these cannot be procured. During the prevalence of scurvy in Dr. Kane's Arctic expedition (1853-'5), the most powerful antiscorbutics were found to be raw fresh meat, raw potatoes, and a beer made of willow-bark and other Arctic astringents, beside the usual vegetable acids and various salts of iron. Both meat and potatoes were far more efficacious for being raw. Mr. R. H. Dana, Jr., in his "Two Years before the Mast," ascribes a remarkable antiscorbutic virtue to raw onions.

ANTISEPTICS (Gr. *anti*, against, and *σηπτος*, putrid), a term applied to substances or means which resist putrefaction. This process commences with the decomposition of albuminous matters, from which are evolved ammoniacal exhalations. Substances containing no nitrogen are little subject to putrefy. The first principle of antiseptics is then to render the albumen insoluble, in which state its decomposition and the conversion of its carbon, hydrogen, oxygen, and nitrogen into ammonia, carburetted hydrogen, and other noxious gases, is prevented. This is effected by soaking the substances in alcohol or essential oils. Chlorine gas has the property not only of decomposing the effluvia already formed, but also of arresting their generation. In the form of chloride of lime it is a useful antiseptic. Air, heat, and moisture, are all requisite for the decaying process to go on. Hence the exclusion of any one of these is an antiseptic

process. Meats are preserved in tin cans hermetically sealed, from which the air has been expelled by keeping the cases in hot steam a moment, and then closing instantly, by solder, the small aperture left open for the escape of the air. The antiseptic properties of a freezing temperature are too familiar to be dwelt upon. Moisture is expelled from meats by drying them in the sun, or in the heat and smoke of chimneys. In the latter position they absorb pyroligneous acid, which, from the creosote it contains, possesses powerful antiseptic properties, and greatly adds to the effect partially attained by the heat. The antiseptic properties of common salt, saltpetre, and sal-ammoniac, as also of alcohol, pyroligneous spirit, creosote, sugar, charcoal, volatile oils, &c., are supposed to be owing to the affinities these substances have for water, abstracting and absorbing the moisture from those bodies they are brought in contact with. Corrosive sublimate has the same property, and also acts chemically upon the fibre itself. Should these preserving substances be dissolved out, at any period however long after their application, the body returns to its former tendency to undergo the putrefying process. Tannin acts as an antiseptic by introducing its strong astringent principle into organic substances, and combining with their gelatine, forming a hard, durable compound, notwithstanding the tendency of each ingredient to decay when uncombined with the other. The antiseptic properties of peat are of the same nature as those of tannin. Bodies have been found perfectly preserved in peat bogs, that must have been undergoing the tanning process for hundreds of years.

ANTI-SLAVERY. See SLAVERY.

ANTISPASMODIOS (Gr. *anti*, against, and *σπασμος*, spasm), the means of removing spasm. Spasm or cramp occurs in muscular structures, and is caused by irritation of the nerves. Spasm consists in an irregular and sometimes excessive action of a group of muscles, or a single muscle, or some particular fibres only of a muscle; and spasmodic diseases are classed in different varieties, according to the parts of the body affected, or according to the supposed cause of the disease. Simple cramps, colics, cholera, asthma, whooping cough, hysteria, epilepsy, cholera, or St. Vitus's dance, tetanus, and lockjaw, are some of the chief diseases attended with spasms, for which antispasmodic treatment is required. Two kinds of nerves pervade the human body; nerves of sensation, and nerves of motion. They run together mostly, side by side, in the same sheath, like telegraphic wires, conveying sensation from every portion of the organism to the brain and nervous centres, and motor stimulus from the brain to all the organs of the body, and particularly to the muscular structures. Though running mostly side by side, they are always quite distinct, and carry messages in opposite directions; sensations from their peripheral extremities to the brain; and volitions or innervations from the brain to their peripheral distributions in the body. In a healthy state, the

nerves of sense convey impressions to the mind and automatic will, which act or react, slightly or strongly, according to the nature of the impression. And here we may notice two kinds of sensation and reaction, commonly called voluntary and involuntary; the first pertaining to the conscious or autocratic will, the other to the unconscious or automatic will. To illustrate the first, we may suppose a mother calls to her child; the child hears the mother's call, and goes to her. The sense of hearing in the child was affected by the sound of the mother's voice; the sensation being carried to the brain called forth the child's attention, and the mind being thus excited set the conscious will in motion to act upon the brain, and stimulate the nerves of motion to act upon the organs of locomotion. The second kind of action and reaction in the nerves of sense and motion may be illustrated by the functions of digestion. When food is taken into the stomach, as at ordinary meals, the nerves of that organ are impressed by the contact of the alimentary substances upon the walls of the cavity, and the impression or unconscious sensation being carried to the nervous centres, causes a reaction or a flow of motor innervation from the cerebro-spinal centres to the digestive organs; which are thereby set in motion to secrete gastric juice and churn the ingested food with vigor and well-regulated industry, until the work is done, and then the stomach is allowed to rest until another meal is taken. Such is the healthy action of the stomach; but, if some improper food or poisonous substance be ingested, the impressions made upon the afferent nerves are more or less unusual and hurtful; and hence they may and often do excite reaction of an irregular and violent character, in the parts affected, or even in other parts of the system. Emetics excite nausea and vomiting, or a revulsive spasm in the stomach; indigestible substances irritate the nerves of the alimentary canal, and sometimes cause severe reaction in the form of spasm, commonly called colic. Worms may irritate the nerves of the digestive system so violently as to produce not only colic in the bowels, but convulsions in the whole body. Inflammation of the mucous membrane of the air-passages may irritate exceedingly the nerves of those organs, and cause reaction of a violent spasmodic character. The uterus and ovaries in females may be so deranged by congestion and abnormal secretions, as to irritate the afferent nerves of the parts, and cause both local and diffused reaction of an hysterical spasmodic nature. A similar disturbance may affect the other sex, but it is not so common. Excessive irritation on any surface of the body, external or internal, may produce spasmodic reaction of a local or a general character, as the tickling of the sole of the foot, in a slight degree, produces spasmodic laughter; and if carried to extremes, convulsions of a fatal nature.—Spasmodic disease is therefore always caused by irritation of the nerves and violent

reaction on the muscular structures, but the seat of irritation may be in different localities, and the cause of irritation may be very different in different cases. Hence a proper knowledge of the cause and chief locality of irritation is essential to judicious treatment; the means being a secondary question, antispasmodic medicines, properly so called, are mostly palliative rather than efficient means of cure. Poisonous matter in the blood, arising from insufficient elimination of waste matter from the system, or from insufficient aëration in the lungs, or from absorption of morbid matter in the system, or from inhalation of carbonic acid gas, or any other cause in fact, may irritate the brain and nerves so violently, as to cause spasmodic action and convulsion in the body. And here we may observe, that direct irritation of the nervous centres, by tumors, congestions, and accumulations of fluid or pus, may cause spasmodic actions and convulsions in the organism, just as irritation of afferent nerves in the peripheral distributions; the source of irritation being central in one case, and peripheral in the other; while the result is more or less analogous.—The substances which are more especially considered as antispasmodics are the "volatile oils," such as mint, lavender, &c., derived chiefly from the tribe of plants called *labiata*; sajeput oil, from the *myrtacea*; dill, anise, fennel, &c., from the *umbellifera*; from which tribe also are derived the fetid gumm-resins, such as assafoetida, galbanum, ammoniac, &c. These, with valerian, myrrh, and camphor, derived from the vegetable kingdom; musk and castoreum, from the animal kingdom; cyanide of iron and the oxides of bismuth and zinc, from the mineral kingdom, are amongst the most valuable antispasmodics.—Spasmodic affections may be complicated with inflammation, and in that case they require most careful and somewhat different treatment. They may also occur in debilitated constitutions, or in persons of full habit; and here again, the treatment differs; so that the term antispasmodics, and the medicines classed under that head, are of small importance in comparison with a correct diagnosis and an appropriate mode of treatment in each special form of spasmodic affection.

ANTISTHENES, the founder of the Greek philosophical sect of Cynics, lived about 400 B. C. In his youth he fought at Tanagra (426 B. C.), and was a disciple, first of Gorgias, and afterward of Socrates. He was present at the death of Socrates. He was an Athenian citizen, although his mother was a Thracian. He taught in the Cynosarges, a gymnasium set apart for the use of young Athenians born of barbarian mothers. He was the master of the celebrated Cynic Diogenes. His doctrine was to live low and think high. He despised all the conventionalities, all the pleasures, all the luxuries, all the amenities of life. His dialogues and essays filled 10 volumes, which are all lost with the exception of a few letters and two declamations, called *Ajax* and *Ulysses*.

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ANTITAEURUS, a mountain chain which extends from Mount Argæus northward into Armenia, and connecting with the Caucasus skirts the basin of the Euphrates on the south.

ANTITHESIS, a figure of speech in which an idea is emphasized by being brought into juxtaposition with an opposite or converse idea, thus: "This book contains much which is good and new, only it is a pity that the good is not new, and the new not good." It must not be used too much, for it soon wearies the reader by an appearance of too great elaboration.

ANTITRINITARIANS, a term first used in the 16th century in relation to the Socinians, but now applied to all who reject the doctrine of the Trinity as set forth by the church since the first council of Constantinople (381). Until that time, the Trinitarian faith of the church had not been distinctly pronounced. The Antitrinitarian movement in theology may be considered as originating in the discussions of Praxeas (200) concerning the nature of Christ, and is from that time traceable through the Sabellians (251), the Samosatenians (269), the Arians (325), the Macedonians and Apollinarians (362), and later, the Socinians and the Unitarians. These denominations are not to be regarded as necessarily possessing any further sympathy with each other than that which grows out of the fact that they have all opposed the Trinitarian doctrine of the council above mentioned. Antitrinitarianism originated in a discussion concerning the relation existing between the divine and human natures in Christ, and ended in a denial, not only of his dual nature but of the personality and divinity of the Holy Ghost. Antitrinitarians do not reject the Scriptures any more than their opponents, but ground their views on the interpretations which they give of Scripture passages supposed to bear on the doctrine in question.

ANTIUM, a maritime city of Latium, situated to the south of Ostia. It was the chief stronghold of the Volsci, and the place whither Coriolanus retired after being exiled from Rome. The ruins of Antium are now called *Porto d'Aneo*.

ANTIVARI, a town and seaport of the north of Albania, on the Adriatic. Its harbor admits only small vessels. It exports oil only.

ANTEOI, a name applied to those who live under the same meridian, and at the same distance from the equator, the one on the north side and the other on the south; consequently they have the same longitude, the same latitude, but of a different denomination; the same hours of the day and night, but opposite seasons, and the night of one always corresponds in length with the day of the other.

ANTOINE DE BOURBON, duke of Vendôme, and afterward king of Navarre, was the father of the famous Henry IV. of France. He married, in 1548, Jeanne d'Albret, only child of Henry II., king of Navarre, and assumed the title of king in her right. After the accession to the throne of France of the young king Fran-

cis II., he endeavored to obtain the control of the affairs of that country, but failed, through his want of energy and perseverance. On the death of Francis II., in 1560, he was made lieutenant-general of the kingdom, and adviser to the queen mother (Catharine de' Medici), during the minority of her son. Upon the breaking out of the civil war, in 1562, he commanded the royal forces, and died in November of that year, of a wound received at the siege of Rouen.

ANTOINETTE, MARIE. See MARIE ANTOINETTE.

ANTOLINEZ, the name of two Spanish painters. I. JOSÉ, born at Seville in 1689, died 1676. He was remarkable as a landscape painter, but his death, at the age of 87, prevented his attaining the distinction which his talents promised. II. FRANCISCO, nephew of the preceding, born 1644, died 1700. He studied for some time under Murillo, and afterward with his uncle; but having become tired of painting, attempted the profession of an advocate, in which, however, he did not succeed, being forced to return to painting in order to earn his subsistence.

ANTOMMARCHI, CARLO FRANCESCO, physician to Napoleon at St. Helena. He was a native of Corsica, born in the latter part of the 18th century, died April 8, 1838, at San Antonio de Cuba. He was professor of anatomy at Florence, where, in 1818, Lætitia Bonaparte sent Cardinal Fesch to induce him to go to St. Helena. Dr. Antommarchi's great admiration for Napoleon led him to yield readily to this request, and he made his first appearance before the great captive at St. Helena, April 13, 1819. The emperor at first treated him with marked coldness, but as the doctor displayed as much discretion as ability, he soon honored him with implicit confidence. Napoleon left him a legacy of 100,000 francs, and after his death he returned to Paris, where he published a book on Napoleon, entitled, *Les derniers moments de Napoléon*, which, as may be supposed, was read all over Europe with intense interest. He had taken a cast of Napoleon's head after his death, which afterward brought him into many painful controversies with the advocates and opponents of phrenology. The cast not agreeing with the phrenological anticipations of Gall and Spurzheim, the disciples of these savans at once jumped to the conclusion that the cast was not genuine, and that Antommarchi was an impostor, while their opponents availed themselves of the incident as a general argument against phrenology. The poor doctor, worn out by their everlasting, and to him unprofitable discussions, left Paris in 1836, and betook himself to New Orleans and Havana, where he practised homœopathy until his death. He was a man of admirable qualities, modest, and devoted to his patients.

ANTONELLE, PIERRE ANTOINE, marquis, a French political economist, born at Arles in 1747, died in the same town, Nov. 26, 1817. He was one of the many brilliant men who

came to the surface at the epoch of the revolution, and having studied with equal diligence philosophy, politics, and the arts, he played various parts, and held various positions as a republican leader, from 1791 to 1797. It was his fate, however, to be often imprisoned and to be included in all proscriptions, and in 1797 he was condemned and exiled as an incorrigible anarchist. He travelled in Italy, and in that country of the arts, amid the remains of antiquity, he forgot his past errors and his present misfortunes.

ANTONELLI, GIACOMO, cardinal, secretary of state, and president of the ministerial and state council of the papal states, prefect of the apostolic palaces, president of the congregation in connection with St. Paul's cathedral, was born at Sonnino, near Terracina, April 2, 1806. He was educated at the great seminary of Rome, and as he displayed considerable ability, he was raised to the prelate by Pope Gregory XVI., received the appointment of recorder of one of the superior criminal courts, was sent as delegate to Oviato, Viterbo, and Macerata, and subsequently received the cardinal's hat. After the death of Gregory XVI., the cardinal became the confidential adviser of his successor, the present pope Pius IX., who appointed him under-secretary of state for the interior, and minister of finance to the second apostolic exchequer. In 1849, after the pope's arrival at Gaeta, as a fugitive from Rome, the cardinal was raised to the position of secretary of state, which he still holds to the great satisfaction of the pope. He is a man of unbending disposition, a zealous conservative, and a strenuous opponent of the innovating spirit of the age. His manners are cold, reserved, and little calculated to make him popular, but his devotion to the policy of the absolute powers, and to the religious and political interests of the church of Rome, is great, and is supported by a remarkable energy and strength of character. His personal appearance is striking and imposing, impressing all who see him with a sense of the remarkable powers of intellect for which he is distinguished.

ANTONELLI, LEONARDO, cardinal, bishop of Velletri and Ostia, president of the sacred college, born at Sinigaglia in 1730, died in 1811. He belonged to the ultra-jesuitical party, which brought him into collision with Clement XIV., who had abolished the society of the Jesuits, and it was only after the advent of Pius VI. that he could obtain the cardinal's hat. During the French revolution he took an active part in the political movements of the Vatican, and proposed the most extreme measures. In 1804 he accompanied the pope to Paris. In 1808 he was expelled from Rome by the French, and conducted to Spoleto. A few years afterward he died at Sinigaglia, his native town. In his younger days he wrote the brief for the interdiction of the duke of Parma, which suggested to Voltaire the play, *Le Royaume mis en interdit*.

ANTONELLO DA MESSINA, a Sicilian painter, born at the beginning, and died at the end of the 15th century. According to Vasari and other authorities, he was the first Italian who painted in oil. Oil painting was suggested to him in 1443, by one of Van Eyck's pictures, which he saw at Naples, and which struck him so powerfully that he immediately set out for Bruges, to study under Van Eyck himself. On his return to Italy, he divulged his experiences only to Domenico Veneziano, until some considerable time afterward, when he spread the knowledge of oil painting all over Venice. Before his journey to Bruges, he had already acquired some fame at Messina, Rome, and Palermo, which became more firmly established on his return, when he worked for some time at Milan and at Venice, to some extent in portrait painting, but chiefly in religious pictures. He painted two altar pieces for the two churches of the Dominante, beside several Madonnas and other sacred subjects for individuals, and some few productions in fresco. His works are still preserved in many Venetian collections.

ANTONIA, a strong fortress in Jerusalem, which stood upon a hill 50 cubits high, at the N. W. corner of the temple area, above which it rose to the height of 40 cubits. It was built by the Maccabees, and subsequently rebuilt on a more magnificent scale by the first Herod. Within, its extent and splendor were palatial. It communicated with the porticoes of the temple area by flights of steps.

ANTONIANO, SILVIO, an eminent scholar, born of humble parents at Rome, in 1540, died in 1608. At the age of 16 he was made professor of literature at Ferrara. Pius IV. took him thence to fill the professorship of belles-lettres in the college of wisdom at Rome, where he gained great celebrity, and was subsequently chosen rector of the college. He afterward held the office of secretary to the sacred college for 25 years; was the chamberlain of Clement VIII., and finally a cardinal. A work of his on education, and some orations, have been published.

ANTONIDES, HANS, surnamed **VAN DER GOES**, a poet of Holland, born at Goes, in Zealand, April 8, 1647, died Sept. 18, 1684. The study of the Latin poets first stimulated his genius, and having made some translations from Horace and Ovid, he composed a tragedy called "Trazet, or the Invasion of China." His genius procured him the notice and esteem of several influential persons, one of whom educated him at Leyden, and gave him a place in the admiralty. The best of his poems is his epic on the river Y, entitled *Y-stroom*.

ANTONINI ITINERARIA, two works which have come down to the present day, and which may be compared, in some respects, to modern road-books. One of these gives statements of the distances between the various seaports of the Roman empire by water; the other is a direct itinerary of the Roman roads,

through the provinces, with the respective distances from town to town, and port to port, in Roman miles. They are found by modern travellers to be extremely correct, and have proved of much use to those who have studied the local and comparative geography of the Roman provinces, with a view to illustrating the history of campaigns, and to obtaining a clear comprehension of ancient military operations; among whom Col. Martin Leake may be mentioned as one of the most distinguished, for the light he has thrown on the strategical history of Greece, by his careful investigations of the topography of that most interesting country.—By whom the Antonine Itineraries were compiled is utterly uncertain. By some they have been attributed to Marcus Aurelius Antoninus, the emperor; by others to Antoninus, a geographical writer, whose age is unknown; but both these opinions are evidently incorrect. Professor Anthon leans to the opinion that they were originally compiled in the cabinet of some one of the early Roman emperors, perhaps that of Augustus, and were enlarged by various additions, made during successive reigns, as new routes were opened, or new stations added. Some critics have assigned them to Julius Honorius, a contemporary of Julius Cæsar, of whose works a few pages are extant, entitled *Excerpta quæ ad Cosmographiam pertinent*; others, especially Mannert, who expresses himself very positively on the subject, are in favor of a writer named Æthicus, and surnamed Soter, a Christian of the 4th century, to whom is attributed a work, yet extant, called *Cosmographia*. Professor Anthon's opinion, probably, comes the nearest to the truth.—The best edition of the Itineraries is that of Wesseling, Amsterdam, 1785, 4to.

ANTONINI VALLUM, the wall or rampart of Antoninus Pius, erected during his reign, by his lieutenant, Lollius Urbicus, in the year 141, across the island of Great Britain, running from the north of the Tweed on the east to that of the Eak, where it enters the river Liddle, a short space above the Solway Frith, on the west, a distance of 60 or 80 miles, nearly on the border line of England and Scotland, though chiefly within the latter kingdom. It was considerably north of the wall of Hadrian, which ran across Northumberland and Cumberland, from the mouth of the Tyne to the Solway Frith, and was composed of a double line of turf and stone ramparts, or embankments, portions of which are still discoverable, having towers, at equal distances, covering the whole width between the two defences, affording flanks to the curtains, and serving as barricades to the legionaries, who garrisoned these great lines, which formed a complete covered way, connecting a series of fortresses supporting one another, from sea to sea, across the whole width of the island.

ANTONINUS, COLUMN OF, the name given to the sculptured pillar which Marcus Aurelius erected to the memory of his father-in-law, Antoninus Pius. The splendid staircase, with

190 steps hewn in the 19 blocks of marble of which the column is composed—the statue of St. Paul crowning its top—and the bas-reliefs around the column illustrating the victories of Marcus Aurelius over the Marcomani, present an appearance of singular magnificence. The Doric and Corinthian styles are blended in the architecture of the column in a remarkable manner. The pedestal and top are Doric, while the proportions of the column are Corinthian. The bas-reliefs, in imitation of those of the column of Trajan, are in beauty and purity of execution rather inferior to the original. The column was restored to its present condition in the latter part of the 16th century by Domenico Fontana, the architect of Sixtus V., and still exists as one of the chief ornaments of Rome.

ANTONINUS, MARCUS AURELIUS, emperor of Rome, son-in-law and successor of Antoninus Pius, born A. D. 121, ascended the throne, 161. It was after the death of Ceionius Commodus, better known as Verus, his immediate successor, that Hadrian, who would have at once adopted Marcus Annianus Aurelius as his heir, but for his tender age, which rendered him unfit, as yet, for office, selected Antoninus Pius to succeed him. In order, however, to guard the empire against future anarchy, and the evils of a disputed succession, he caused Antoninus, in his turn, to adopt Marcus Annianus and Lucius Verus, the son of Commodus, as his ultimate successors and inheritors of the diadem of the Cæsars. During the long reign of Antoninus Pius, who had given to him his daughter Faustina in marriage, Marcus distinguished himself principally by his studies in philosophy, having assumed the mantle of the stoics in his 12th year; while Verus so far disgraced himself by his early profligacy, that his adopted father disinherited him, and procuring the nomination of Marcus Aurelius, as sole emperor, by the senate, associated him with himself in the empire, previous to his own decease, in order to accustom him to the cares and burden of government. On his accession, however, with rare disinterestedness Marcus Aurelius, who now assumed the name of Antoninus, associated the disinherited Verus with himself as his colleague, giving to him an equal share of the government, which he believed would be of utility to the state, and, in fact, to all parties; since he was himself inclined to philosophic pursuits and literary leisure; was averse to action, a disliker of war on principle, and of weak frame and infirm health. It was his fate, however, to be forced into action, and to be constantly involved in war; and, with a firm resolution and clear perception of duty, which formed a part of his truly philosophic character, he overcame his physical disabilities, his moral dislike to war, and his leaning to mental pursuits, and proved himself both a resolute and successful general and a wise and moderate statesman. Shortly after the accession of the emperors, a war broke out with the Parthians in the east, the command

of which, nominally given to Verus, was virtually held by his lieutenants, the principal of whom, Avidius Cassius, overran Mesopotamia, destroyed Seleucia, and penetrated as far as Babylon, while one of his colleagues made himself master of Armenia, replaced the rightful king of the Parthians, Sozimus, on the throne, and reduced Vologeses, his rival and the instigator of the war, to sue for a dishonorable peace. This oriental outbreak was followed, or rather interrupted, by yet more dangerous hostilities in the north, extending the whole length from the sources of the Danube to the Illyrian frontier; where the barbarous tribes of the Marcomanni, Alani, Jazyges, Quadri, Sarmatae, and others, all took arms, at once, in such force as compelled both the emperors to proceed to the frontiers. Here they were so successful, that, in A. D. 169, the enemy sued for peace, and the colleagues set out on their return for Rome; but Verus, dying of apoplexy on their journey, and the war being renewed, Marcus Aurelius again turned his face northward, and for the next 5 years carried on the war in person in Pannonia, without ever returning to Rome; enduring the greatest hardships and suffering from the excessive severities of that rigorous climate with the calm serenity of a true philosopher, while he conducted his campaigns with the skill of a finished soldier. On one occasion, a fierce battle was fought on the surface of the frozen Danube, but the most remarkable victory, was one gained over the Quadri, in consequence of a sudden and terrific thunder-storm, by which the Romans were saved from apparently imminent defeat, and the superstitious savages confounded and put to route. This victory was generally ascribed to divine interposition, the emperor and his Romans attributing it to Jupiter Tonans, and the Christians, who composed the 13th or Meletine legion, to the influence of their prayers with the God of Hosts. Eusebius goes so far as to assert that, in consequence of the latter fact admitted, the emperor gave to that body of men the title of "the thundering legion;" but as, in spite of his virtues, Aurelius Antoninus persecuted the Christians, it is incredible that he should have given them a title, admitting the truth of their creed, and the power of the God whom they worshipped. In the mean time, his wife Faustina, a more dissolute woman even than her mother, learning the danger of her husband's situation, and fearing that in the case of his death, and the long minority of her young son, Commodus, she should sink into a private station, entered into an intrigue with Avidius Cassius, the emperor's deputy and general in Syria, promising him her hand in case of the destruction of Aurelius, and encouraging him in that event to seize the reins of government. A false report of the defeat and death of Aurelius following, Avidius Cassius assumed the purple; and despairing of pardon, when he learned the falsity of the report, persisted in his rebellion, and rapidly made himself master of all Asia

west of Mount Taurus. But while the emperor was making preparations to reduce him, the usurper was assassinated by a centurion of his own army. The conduct of Aurelius Antoninus was magnanimous in the extreme, and worthy of the best of Christian princes, rather than of a persecutor of the church of Christ. He put no one to death in consequence of the overt treason, punished but few, and burned the letters of Cassius, in order to avoid learning who had seconded or instigated him in his proceedings. During his progress to the army in Asia, Faustina, who had remained in her husband's company during these compromising events, and whose privacy he either did not suspect, or, more probably, did not choose to perceive, died in Cilicia; not without its being surmised that she died by her own act, self-convicted and fearful of just retribution. In A. D. 176, he revisited Rome, after an absence of 8 years, celebrated his victories by a splendid triumph, and by a largess to every Roman citizen of 8 pieces of gold; then, having associated with himself in the sovereignty his unworthy, and indeed infamous son, Commodus, and celebrated the young man's nuptials with Crispina, he marched in company with his expectant successor to conclude the war with the northern barbarians, and, in the midst of a career of uninterrupted triumph, died at Vindobona, now Vienna, on March 17, 180, in the 59th year of his age, not without a suspicion that his death was accelerated by his own son. He was indisputably an excellent man, and an admirable monarch. His whole life was a practical example of his own philosophic doctrines. Severe and conscientious toward himself, he was gentle and merciful to every one else. No monarch ever lived more beloved, or died more regretted, than he. The only blot on his character was a cruel persecution of the Christians in Gaul; and this is so inconsistent with the spirit of his own character, with his general principles of mildness and toleration, and with the example of his predecessor, by which he was for the most part strongly influenced, that it cannot be doubted that he either wholly misunderstood the system of Christianity, and believed it, as many in that age did, to be an irreligious political sect adverse to all forms of government, or that he was misled by ill-advisers. His "Meditations," which are still extant, would be an honor to any writer of any age, and breathe the very spirit of the religion which he persecuted, without knowing what or wherefore. The best edition of the "Meditations" of Antoninus is Gataker's, Cambridge, 1652, 4to.

ANTONINUS PIUS, TITUS AURELIUS FULVIVS, emperor of Rome. He was descended from a respectable provincial family of Nemausus (*Nîmes*) in Gaul, but was himself born at Lanuvium (*Civita Lavinia*), a few miles S. E. of Rome, on the Appian way, Sept. 19, A. D. 86. He rose, during the reign of Hadrian, to the administration of Asia, and afterward to the management of one of the four re-

gions of Italy; in both of which elevated positions he distinguished himself eminently for his wisdom, mildness, and moderation, being loved and admired of all men, for his own virtues and unobtrusive merits. To these qualities, alone, he owed his elevation to the empire, after the death of Hadrian, having been adopted by that virtuous emperor, as his successor, wholly on account of his fitness for the difficult and dangerous eminence.—His reign was long, and so eminently happy and prosperous, that it passed away leaving no mark upon the page of history; and being, as it were, almost blank, left not a wake behind, since the calamities of nations, the wars and pestilences, the periods of conquest, misgovernment, sedition, and anarchy, are the events which mark epochs by footprints, like those of the horse of Attila, in which no grass can grow, until the lapse of centuries shall have restored fertility to the soil and security to the husbandman. In his domestic policy, this wise and amiable ruler seems to have had but one object in view, the promotion of the good of the state, and of the happiness of his people. Abroad, he adhered strictly to the principles of his predecessor, making no effort to advance the limits of the empire, although, by his firmness and wisdom, he well knew how to deter the turbulent barbarians on his frontiers from disturbing the peace of the realm. The Germans, the Dacians, the Mauritanians, the Greeks, the Egyptians, all exhibited, at times, some tendency to give trouble; but all their aggressions were easily frustrated by mere demonstrations of military measures.—The only commotion of any real consequence was that of the Brigantes, in the northern part of Yorkshire, who repeatedly invaded the British province, but were severely defeated by the legate, Lollius Urbicus (A. D. 141), who built a strong rampart of turf and stone, the ruins of which can be still traced, and are, to this day, known as the wall of Antoninus, from the mouth of the Esk to that of Tweed, some distance to the north of that of Hadrian, which had been erected to prevent the incursions of the Caledonians, from the mouth of the Tyne to that of the Solway. So great was his repute for wisdom and goodness, that even the remote barbarians far from civilization, dwellers without the shadow of the Roman name, eagerly sought his friendship and alliance. The Parthians gave up their hostile views against Armenia, owing solely to his remonstrances; the Scythians submitted their disputes to his arbitration; and the barbarians on the Upper Danube received a king of his appointment. At home he promoted literature and education, made up for the losses of citizens, incurred by public calamities, such as earthquakes, conflagrations, and inundations, out of his private purse; and, living the peaceful and gentle life of a private citizen, was equally accessible to, and equally beloved by, high and low.—His wife, Faustina, by her irregularities and debaucheries, would have disturbed the equanimi-

ty of one less calm and serene than he, in the quiet tenor of his way; but he passed over, as if unseen, what he could not prevent, and what it would have been shameful to disclose; and when she was dead loaded her memory with honors, of which she was not worthy.—He was fond of country life, and passed much of his time at his Campanian villas, never after his accession appearing at the head of his armies, and refusing to travel in his provinces, in order that they might not be subjected to the expenses of a royal progress.—He reigned long, peacefully, and well, from A. D. 138 to A. D. 161, dying at the age of 75 in his villa of Loricum, universally beloved and regretted. His reign of peace and order, his scrupulous observance of religious rites—for he seems to have been a devout and pious Pagan—procured for him the title of the second Numa. He tolerated and protected the Christians, who had become very numerous during his reign, both in Rome and in the provinces; and received with favor the first apology for the Christian religion, addressed to him by Justin Martyr. It is said that the peaceful quiet of his reign increased the indolence and effeminacy of the Romans; and that the legions, through want of employment, lost much of their warlike spirit. Such generalizing allegations can, however, rarely be sustained; and, apart from the inconsistency of supposing that Antoninus ought to have levied unjust wars on unoffending nations, in order to keep up the military ardor of the Romans, it is probable that other causes than peace relaxed the bonds of discipline, and brought the legions to such a condition that, subjects of contempt to their barbarous enemies, they became objects of terror only to their fellow-citizens. By his wife, Faustina, he had 2 sons, both of whom died before their father, and 2 daughters—one of whom, a second Faustina, inherited both the beauty and the profligacy of her mother. She was married to Marcus Annus Aurelius, whom he associated with himself, while yet living, in the government, and who succeeded him, under the title of Antoninus II., in the administration of the empire.

ANTONIO, NICOLAS, a Spanish bibliographer of Flemish origin born at Seville in 1617, died at Madrid in 1684, distinguished himself by his bibliographical works, the *Bibliotheca Hispana Nova*, and the *Bibliotheca Hispana Vetus*, which comprehend all the literary names of Spain, and in some cases of Portugal, from the 1st century to nearly the end of the 17th. In many instances biographies are given of the various authors.

ANTONIUS, MARCUS, surnamed the Orator, born 143 B. C.; prætor in 104, when he fought against the pirates in Cilicia; consul in 99, when he distinguished himself by his resistance to the party of Saturninus; censor in 97. He was famed for his eloquence in the forum, rendering, according to Cicero, Italy the rival of Greece, and for his integrity in public life. As

an aristocrat, he adopted the party of Sylla, and was put to death by Marius and Cinna, when they triumphed. He is one of the interlocutors in Cicero's *De Oratore*.—MARCUS CÆCILIUS, son of the preceding, and father of the triumvir, was prætor in 75 B. C. He obtained from the senate the direction of the coasts of the Mediterranean, in order to free them from pirates, but used his power only to pillage the provinces. He failed of success in the Cretan war, and is thought to have died of chagrin.

ANTONY, MARK (MARCUS ANTONIUS), the Roman triumvir, born 86 B. C., died 30 B. C. This extraordinary character, one of the strangest in all antiquity, and paralleled only during the French revolution, was the grandson of Marcus Antonius, the greatest orator and one of the greatest men of his day, savagely murdered by the fierce plebeian, Marius. His father, also Marcus Antonius, was surnamed Creticus in derision, from a disgraceful defeat which he suffered in an unprovoked invasion of the isle of Crete. His mother, Julia, of the family of the Cæsars, was married a second time after his father's death to Lucius Cornelius Lentulus, strangled in the Tullianum for complicity in Catiline's conspiracy; and by that desperate voluptuary he was educated, if it can be called education, to every sort of riot and debauchery. He went abroad early, served with Gabinus in Syria, and distinguished himself greatly, both there and in Egypt, where he already gave tokens of consummate soldiiership. He next joined Cæsar in Gaul, where he passed several campaigns with still increasing honor as one of his legates, and deserved much of the credit, usually given to his leader, for the total defeat of the Vercingetorix at the terrible siege of Alesia. His third step was a civil one; for being elected one of the tribunes of the people, when the senate ordered Cæsar to disband his forces, he, with Quintus Cassius, vetoed the bill; and, on the senate proceeding to arm the consuls with dictatorial power by the vote *ne quid reipublice detrimenti capiat*, they fled together, disguised as slaves, to Cæsar's camp, feigning to believe that their lives were in danger, and gave that ambitious general the occasion he was looking for to cross the Rubicon and march his army upon Rome. In reward for this service, when Cæsar went to follow up his fortunes by crushing out the Pompeian party in Spain, he left Antony governor of Italy, and lieutenant-general of his forces; and here it is that he first displayed the frantic *Pantagruelism* of his character. Purposely outraging all sentiments of decency and decorum, all feelings of Roman dignity and honor, driving in a car drawn by lions with Citharede, a beautiful actress, by his side, his own wife Fulvia following him among a bevy of fair courtezans from Magna Græcia, he astonished and terrified all Italy by the open ostentation and cynicism of his vices. When the last struggle took place between Pompey and his own commander, however, he at once laid aside the debauchee and resumed the sol-

dier; it was his skill that preserved the fleet and intrenchments at Dyrrachium; it was he who commanded the victorious left wing in the crowning conflict at Pharsalia, and turned the wavering tide of success to the standards of Cæsar. During the second absence of Julius, when he was rioting and fighting in Egypt, Antony was renewing, with more than tenfold orgies of audacity and overt infamy, his life of the preceding year; crowned and carousing like Bacchus, from whom, at one time, as at another from Hercules, he claimed to be descended, at the head of his reeling legions, yet at the same time wielding the reins of state with eminent ability, during the absence of his patron. When that patron returned, and was proclaimed "perpetual Dictator and Father of his country," when he was invested for life with the purple toga and palmated tunic, and authorized to wear the gilded bays on his bald crown, it was Antony who shared his triumph and was his colleague in the censorship. When the Ides of March had come, and great Cæsar fell at the base of Pompey's statue, it was the masculine and sonorous eloquence of Antony—for he was an orator second to Cæsar and Cæsar only—that did actually raise the stones of Rome to mutiny, and forced the discomfited murderers to fly from their half-finished task. And when the last act came of that wild drama, it was Antony's soldiership and Antony's sword that defeated Cassius and drove Brutus to suicide, while the cold, cowardly, crafty Octavius, afraid of war, as he was afraid of darkness, of thunder, of crowds, of solitude, was sleeping in his secure tents.—In the proscriptions which followed, it is characteristic of Antony, that he was by so much the more insolent, as he was the less cruel, of the triumvirs—Octavius taking the lead in calm, cold-blooded barbarity, as did the mad Antony in overweening effrontery and license. But the 3d triumvir, the imbecile Lepidus, was soon disposed of; and Octavius and Antony divided the Roman world, as masters. Antony took the East, as might have been expected; for his mind, in all its conditions of furious debauchery, contempt of ends, reckless sensuality, heaven-daring vanity and ambition, was all oriental. Octavius, the cold formalist, betook himself to the West to consolidate a new despotism out of old maxims and sage saws of the worn-out republic.—Thenceforth, the life of Antony was one wild dream; he was the Osiris to Cleopatra's Isis; bestowing crowns; outraging senates; every thing for a moment, but nothing for a day. Once he broke from his luxurious lethargy, invaded central Armenia and penetrated Parthia; and then, forced to retreat at length by the circumstances of the country, the climate, the innumerable hordes of oriental horse, brought off his army by the most wonderful display of soldierly qualities, by the most extraordinary retreat ever successfully made by man. In 21 days he fought 18 pitched battles, marched 800 miles, through one continuous skirmish, and when he reached the boundary stream, which might have been his Beresina, his

Parthian pursuers unstrung their bows and bade him go his way unharmed, he was too great a warrior and too merciful a man to be slain by them in any petty skirmish. So he returned to his life of luxury and to Cleopatra, his serpent of old Nile. But his career was run; his veterans were worn out and wearied with his vagaries; beside they were Romans, and he would have made them Egyptians, and that they could not brook. Rome took arms against him; his troops, his mistress, his fortune deserted him; and Actium saw him, for the first time, with his back to his foes.—Deceived to the last by the bad Egyptian queen, who cheated him by a false rumor of her death to his own destruction, he died by his own hand—it was almost the monomania of his age and nation so to die!—and left a name and character like to that of but one other man who ever soiled the page of history with the record of his ill-deeds and evil death. Most like he was to Mirabeau in this, that he was every thing at times, and every thing almost the greatest, but nothing long—orator, soldier, statesman; fiddler, trifier, buffoon; tribune, triumvir, conqueror; faithful lover, false husband, frantic debauchee; and, when the wine of life was quaffed to the lees, a careless, fearless suicide at last.

ANTOSIANDRIANS, a sect of rigid Lutherans, also called Osiandromastiges, who denied the truth of the doctrine of Osiander concerning justification, that man is made just with a justice like unto that of God himself. They hold that man is not made absolutely just, but only imputatively so.

ANTRAIQUES, EMMANUEL LOUIS HENRI DE LAUNAY, comte d', a French politician born at Ville-Neuve-de-Berg in 1755, murdered, with his wife, in a village near London, by his domestic, Lorenzo, July 23, 1812. A republican pamphlet, which he published in 1788, in which he justified insurrections, and characterized "hereditary nobility as the most fatal gift which the heavens in their wrath had bequeathed to man," produced a strong impression upon the public mind, especially as it came at a time of great excitement, and from a scion of aristocracy, above all, from the Count d'Antraigues, a nephew of the count of St. Priest, the minister of Louis XVI. Antraigues' pamphlet is supposed to have accelerated the outbreak of the revolution, and the liberals of his native town rewarded his republican zeal by sending him as deputy to the states-general of 1789. But, strange to say, after his election his zeal suddenly cooled down; nay, he went over to the opposite extreme, and became as fanatical a royalist as a moment before he had been an enthusiastic republican. He left France in 1790, put himself in political connection with such of the European powers as were opposed to the republic, and favorable to the cause of the Bourbons, and from that time till his death, he took a conspicuous, mercenary part in all the foreign machinations against the French people. Considerable sums having been put

at his command by the despotical governments of Europe, he had it in his power to exert a powerful influence to assist Pichegru in his designs against Napoleon. The evidence of Pichegru's conspiracy was found among the papers of Antraigues on the occasion of his falling into the hands of the French army, from which, however, he made his escape to Russia, while Pichegru was a doomed man. In Russia he embraced the Greek religion, received a pension from the emperor, and was appointed to a diplomatic post at Dresden, where, however, he was not permitted to stay, as he had written an offensive letter to Napoleon, who insisted upon his expulsion from Saxony. He now turned his eyes toward Great Britain, and some knowledge which he had obtained of the secret articles of the treaty of Tilsit, enabled him to make successful negotiations with the English government, who in consideration of his communicating those articles undertook to pay him a pension. It seems, however, that copies of the papers were put into possession of the French government through the instrumentality of his domestic Lorenzo, and it is supposed that Lorenzo, becoming afraid that his master would find him out, murdered him and his wife, just as they were about to proceed to London. This view of the murder seems to be corroborated by the fact that Lorenzo committed suicide immediately afterward.

ANTRIM, or **MEGISSEK**, a county of Michigan, bordering on Grand Traverse bay, Lake Michigan. Area, 700 square miles. Pop. not computed. Unorganized.

ANTRIM, the north-easternmost county of Ireland, which has on its N. E. the Giants' Causeway. Area, 1,164 square miles, nearly one-half of which is mountainous and boggy. Pop. 850,000—**ANTRIM**, an inland town of this county, contains manufactories of linen, calico, hosiery, and near it are Antrim Castle, and Shane's Castle, one of the famous round towers of Ireland. Pop. 2,700.

ANTUCO, a volcano and valley of the Chilian Andes. The volcano is 16,000 feet high. Lat. 26° 50' S. long. 70° 40' W.

ANTWERP, a maritime city of Belgium, the capital of a province bearing the same name. It is situated on the N. bank of the Scheldt, 26 miles N. of Brussels, and 32 miles E. N. E. from Ghent. Population (1855), 79,000. The city has the shape of a bow, the walls forming the semicircle, and the river the cord. The fortifications, which are very complete, have a length, including the citadel, of about 2½ miles. The strong pentagonal citadel was built by the duke of Alva, in 1567. Antwerp is a very ancient city. It was at the height of its prosperity in the 15th and 16th centuries, at which time it was the commercial centre of Europe, had a widely extended foreign commerce, was frequented by ships of all nations (as many as 2,500 vessels lying in port at one time), and is said to have had a population of 200,000. In 1576 it was sacked and burned by the Span-

iards. In 1585 it was taken, after a protracted siege, by Alexander, prince of Parma. Thereafter its trade was removed to Amsterdam, and other towns of the United Provinces. In 1794 it fell into the hands of the French. In 1832, after the revolt of the Belgian provinces, it was retaken, after a memorable siege, by the French Marshal Gerard. Although not so important a city now as in the middle ages, the commerce and manufactures of Antwerp, at the present day, are far from inconsiderable. The river admits vessels of the largest size. The basins erected by Napoleon, and which have been turned into spacious commercial docks, are capable of containing 1,000 vessels. Extensive communication by canal gives to Antwerp an extended inland commerce; 1,970 vessels, of a tonnage of 286,474 tons, arrived here in 1846. It is the point of a regular and much frequented steam communication with England, and has lately become a point of departure for numerous emigrants to the United States. It is one of the most important hide markets in Europe. Its chief manufactures are black silks and velvets. It has also manufactories of cotton, linen, laces, carpets, hats, and cutlery, as well as sugar refineries, and ship-yards. The city retains to the present day much of its ancient splendor. Most of the houses are ancient, and solidly built. It has many fine public buildings, the chief of which is its cathedral, a superb Gothic structure, begun early in the 15th century, and completed in not less than 84 years. There are 8 other churches of note, the exchange, built 1583, the hotel de ville, a palace for the king when he chooses to reside in Antwerp, and the hall of the Hanse towns. It has, beside, an academy of painting, sculpture, and the sciences, a public library containing 15,000 volumes, a picture gallery with 200 very valuable pictures, many of them masterpieces of the old Flemish masters, a botanical garden, and diverse schools, hospitals, and asylums.

ANUBIS, or **ANEPY**, one of the principal Egyptian deities of the second cycle. He was represented either as a dog or a man with a dog's or a jackal's head. Sometimes he wore a double crown. A white and yellow cock was sacrificed to him. He was supposed to be the son of Osiris, begotten by Nephtys by a mistake. But Isis, the lawful wife, instead of being jealous, took the child, educated him, and he became her devoted and faithful guardian. When Osiris was murdered by Typhon, Anubis helped Isis to find his body. He accompanied the souls of the deceased to their place of judgment, and, together with Hermes, Psycho, Pompos, and Horns, weighed their actions before the tribunal of Osiris. In the Greek mythology he was confounded with Hermes. In the mythological astronomy of the Egyptians he was the 7th in heaven.

ANUND. There have been two kings of Sweden bearing this name. The first, who flourished in the 10th century, was the son of Yngvar, and the father of Ingiald Iroda.

After a raid in Esthonia to avenge the death of his father, he seems to have given himself up to avocations of a peaceful nature. He opened roads and encouraged the clearing of land, from which he received the name of Brant-Anund. He made frequent journeys through the various provinces of the kingdom to dispense justice and to incite his people to the love and practice of agriculture. It was while he was upon such a tour that he was slain, together with several of his followers, by the falling of an avalanche of snow and earth at a place called Himmelhed.—The second ANUND, called JAKOB, was the son of Olof Skötkonung, and ascended the throne in 1026. Little is known of his reign except that it lasted until 1051, and was generally peaceful. He made, however, in company with St. Olof, of Norway, an unsuccessful attempt to conquer a portion of Denmark.

AN-UNG-HOY, an island of China in the Canton river, once fortified and constituting one of the Bogue forts, which, though fiercely defended, were taken by the British, 1841. With Chuoupu island it bounds on the east the entrance of the Boca Tigris.

ANURADHAPURA, the ancient but now entirely ruined and abandoned capital of Ceylon. It lies nearly midway between Arripo and Dambool, 48 miles north of the latter.

ANVARI, a poet and astrologer of Khorasan, the favorite of Sultan Sangiar. Having failed in an astrological prediction, he was obliged to fly to Balkh, where he died in 1206.

ANVIL, an iron block with a smooth face on which smiths hammer and shape their work. Anvils are made of various sizes, shapes, and materials. The smallest, called bickerna, are mostly made of steel, but their shape is much varied to answer the numerous varieties of small articles to be made upon them. The largest used with tilt, trip, or steam hammers, are of a very uniform and simple shape. They are, like the face of the hammers, a truncated, quadrangular pyramid. They are placed with the small end up, the large resting upon a block of wood firmly fixed in the ground. They are made of cast-iron. The middle-sized anvils on which the forging is performed with sledge hammers are made of cast or wrought iron. The surface on which the metal is hammered is hard and smooth. The centre part of the anvil is a table longer than it is wide, at each end of which is a horn, one conical and the other pyramidal. This last is very often dispensed with. There is a square hole in the table near the edge, in which are held the various cutting and swaging tools whenever they are used. Formerly extra good anvils were made of wrought iron covered with steel, the fibres of which were placed vertically. To do this the bars of steel were cut in pieces about an inch long; these pieces were placed standing side by side, and bound by a wire. The whole was welded into a steel plate, which was itself welded to the anvil. The heat necessary for

welding very often altered the steel, which was brought back to its original state by the anvil being warmed for a few hours in a box full of cement. It was afterward hardened by pouring a stream of water upon the steel face, and not stopping it till the whole block was cooled. A good anvil of this kind when struck makes the hammer rebound, producing a clear, silvery sound. The best anvils made in the United States are of cast-iron covered with steel; they possess most of the advantages above described, and are comparatively cheap. The covering of steel is placed at the bottom of a mould, and cast iron is poured upon it. Some makers place a core in the mould so as to leave a deep recess nearly reaching the steel covering in the centre of the anvil. The air penetrates into this recess, and the metal is cooled more uniformly. This kind of anvils has only been made for a few years, mostly in Trenton, N. J., and it has already nearly superseded the English wrought iron imported anvils.

ANVILLE, JEAN BAPTISTE BOURGUEIGNON D', a French geographer, of great eminence, born at Paris in 1697, died there in 1782. He had an innate taste for the drawing of charts and globes, and at the early age of 15 he published a map of ancient Greece, which attracted much attention. In his 23d year he was appointed royal geographer. Subsequently he became private secretary of the duke of Orleans, and in 1775 he became connected, as associate-president, with the academy of science. He published 211 maps and plans, and 78 *mémoires*. One of his best maps is that of ancient Egypt. His *Orbis veteribus notus* and his *Orbis Romanus* have become the standard guides of the students of ancient history. His "General Atlas," his *Atlas antiquus major*, and his maps of Gaul, Italy, and Greece, during the middle ages, are justly celebrated on account of their accurate delineation of modern discoveries. In 1779 the French government purchased for the royal library his large collection, which consisted of 10,500 maps. His works have proved of great utility to modern travellers, and although progress has been made in geographical science since their publication, they still retain their reputation. He was a man of matchless industry, and in the latter part of his life worked 15 hours every day. Although he never travelled, yet severe study and incessant labor enabled him to survey the mountains, rivers, towns, and villages of the globe with surprising accuracy. He was a man of great modesty, and spotless character.

ANYTUS, an Athenian rhetorician, who took an active part in procuring the condemnation and death of Socrates. He was afterward stoned to death at Heraclea.

ANZASCA, VAL D', a valley of Piedmont, province of Domo d'Ossola, noted alike for its picturesqueness, its splendid cascades, its beautiful women, and its extraordinary fertility. It contains the famous Monte Rosa.

ANZIN, a town of France, department of

Nord, near Valenciennes. It is well known for its iron founderies, and is the centre of the most extensive collieries in France. Pop. 5,006.

ANZOOAN, ANZOUAN, or ANZUAN, or HINZUAN, an island in Mozambique channel, also called Johanna island. It is the most frequented of the Comoro islands, and is extremely fertile and picturesque. Its centre rises into a single peak, 3,800 feet above the channel. Pop. said to be 20,000.

AONIAN MOUNT. Aonia was a district of Boeotia, near Phocia, in ancient Greece, where was Mount Helicon (the Aonian mount), and the fountain Aganippe (*Aonia aqua*). As the Muses made Mount Helicon a place of favorite resort, that mountain became famous in the poetry of many tongues and ages as the Aonian Mount. The Muses were often called Aonides or children of Aonia.

AORIST, a term of Greek grammar, applied to a tense of indefinite, indeterminate time. There is a first and second aorist in a regularly conjugated verb. The word aorist is compounded of a privative and *opos*, a term or limit.

AORTA (Gr. *aortē* air-vessel). The aorta is the largest artery in the body, the main trunk leading from the left ventricle of the heart to the lower part of the spine, where it divides into two secondary branches called the common iliac arteries. These divide again respectively on either side into an internal branch which ramifies in the lower regions of the trunk, and an external branch descending to the lower limb. The aorta and the arteries were first named air-vessels by the Greek anatomists, because they are empty in the corpse; all the blood being found in the veins. Arteries were not known to contain blood in the living subject until later times, and then the circulation of the blood confirmed the fact. The aorta arises from the left side of the heart, ascends a short distance toward the neck, and then curves downward and backward near the spine, until it divides below into the iliac branches. The carotids arise from the arch of the aorta to supply the head and face, and the subclavian arteries derive from the same arch, to supply the different regions of the neck; and also to supply the upper limbs. Numerous large arteries arise from the aorta or main trunk as it descends from the upper to the lower portions of the trunk; and these divide again into innumerable branches as they ramify minutely and extensively within the body.

AOSTA, a town of Piedmont, capital of the division, on the right bank of the Dora. It contains fine edifices, interspersed with gardens, and the remains of a Roman amphitheatre. The valley of Aosta, in which it stands, is famous for its immense forests of pine, and mines of iron, copper, lead, and marble.

AOUST, JEAN MARIE, marquis d', a French politician, born at Douai in 1740, died at Quincy in 1812, a member of the states-general in 1789, and of the convention in 1792. He was

favorable to the cause of liberty, but as he belonged to the nobility he became obnoxious to the Jacobins, although he had voted in favor of the abolition of the privileges of his own order. Subsequently, however, he was promoted to office by the directory, and the first consul appointed him mayor of Quincy, which office was of great convenience to the marquis, as his estates were situated near that town.—ERATACHE D', son of the preceding, was born at Douai in 1763, and was executed at Paris, July 2, 1794. He was a general in the French service, and while stationed with a detachment of troops in the lower Pyrenees, gained some advantages over the Spanish forces. Two years afterward charges of treason and incapacity were preferred against him, in consequence of his conduct before Perpignan, on which he was tried before the revolutionary tribunal and shot.

AOUSTE, a small town of France, department of Drôme, on the river Drôme. Its ancient name was Augusta, and it was colonized in the time of the emperor Augustus. There are still important and interesting remains of antiquity here.

APACHES, a warlike nation of New Mexico Indians, comprising, according to the census returns of 1850, a population of 8,000, of whom 2,000 rove over the unexplored parts of New Mexico between the river Gila and the southern boundary of Utah, while the larger portion of them range through the country of the Rio del Norte and its tributaries, and westward, above the head-waters of the Gila. The Jicarillas, a branch of the nation, are found about the Sacramento mountains.—The Gila Apaches, who are the best warriors of them all, are found as far as the Rio San Francisco and the mountains of the same name. Those about the springs of the Gila and the Sierra del Mogoyen, are known as the Tonto Apaches, so named by the Mexicans for their notorious imbecility—*tonto* being the Spanish for idiot. The Mogoyen is the central point of all the Apaches on the western side of the Rio Grande. They deem it impregnable, and boast of being able, by means of signal fires, to muster there, almost at once, a force of 500 warriors and more. The Mimbrenos Apaches derive their name from their hunting grounds on the Sierra de los Mimbres. Their country, which abounds in gold and copper, contains the famous old Mexican mine of Santa Rita del Cobre; this is situated on one of the spurs of the Mogoyen. The Copper-mine Apaches occupy the country on both sides of the Rio Grande, and extend west to the country of the Coyoteros and Pinalenos, near the eastern San Francisco river. Their incursions extend far into the states of Chihuahua and Sonora, where, during portions of the year, they reside. Their favorite place of resort is near Lake Guzman, to the west of El Paso. The Mescaleros Apaches range from La Sierra de Guadalupe to La Sierra de San Andrea north and south to the Rio Pecos, and to the Rio Grande to the west, a

region including silver mines worked, in former times, by the Spaniards. They probably derive their name from a plant called *mescal* (maguay), which is the principal food of the Apaches in times of want. The plant grows in abundance all over the country. It resembles the *rahout* of the Arabs. Its taste is bitter and scorching when raw, but sweet when baked. Beside the tribes named, there are a few other smaller Apache tribes, under a chief of the name of Poncé, whose range is up and down the valley of the Rio Mimbres. The Apache language, which abounds with guttural, hissing, and indistinct intonations, is considered to be the parent language of a number of the surrounding tribes. With the advent of the white race in Mexico we find the Apaches in constant warfare against them. When, in their search for gold in the high lands of New Mexico, the Spaniards first met with these Indians, they found them to be a proud and independent, but harmless and well-disposed people. But many of the Spaniards were intent on missionary triumphs, and displayed the symbols of a new belief, in company with adventurers who were only in quest of gold. The unsophisticated savages became disgusted with the foreign invaders, who did not hesitate to attack their dearest traditions; and in 1688 they made common cause with the Pueblo Indians for the purpose of driving the Spaniards out of the land. The missions were destroyed, and the priests massacred. They seized the mines, and any Spaniard who went near them was doomed to die. The whites eventually reconquered the Pueblos, but all their efforts to subdue the Apaches failed before the indomitable spirit of that tribe, which to this day continues to hurl defiance at all governments and all civilization. The states of New Mexico, Chihuahua, and Sonora, have suffered terribly from their incessant inroads. Not very long ago, the various Apache tribes had one common chief, of great valor. He was finally killed, some say by the unexpected discharge of a cannon by the hands of an American trader of Sonora, others say in a pitched battle between the Apaches and the Sonorians. His death was followed by dissensions among the other chiefs, and the Apaches have never since been united. They carry on war only in small guerilla bands or marauding parties. But although their power has been somewhat broken by this lack of harmony, they continue none the less to be the terror of the unwary traveller, and the plague of the local authorities. An attempt was recently made to conclude a treaty of peace with these tribes, and met with but doubtful success. For some years the government of the state of Chihuahua has paid them a bounty, with the object of inducing them to stay their depredations, but to no avail. They pocket the bounty without ceasing to rob and to pilfer. The Apache is the Arab of the American continent. With his bow and arrow he sweeps over the black and barren plain, chasing the antelope, the wolf, and deer, or pouncing down from his

hiding place on a village or settlement. Their lodges are built of light boughs and twigs. The captain of the band wears a kind of helmet made of buckskin, ornamented with a feather. Their arrows are very long, usually pointed with iron. All are mounted on small ponies, capable of great endurance. The women all ride a-straddle. The Spanish bit, or simply a cord of hair passed between the jaws, forms their bridle. Panniers of wicker-work, for holding provisions, are generally carried on the horses of the women. The shells of the pearl oyster, and a rough wooden image, are the favorite ornaments of both sexes, and they are also fond of beads and metal buttons. Their feet are protected by high moccasins of buckskin. Their principal articles of clothing are made of coarse cotton cloth, which they seem never to wash. The quivers are made of deer-skin, and sometimes of wild cat skin. Many of the Apaches dress in the breech-cloth only, but they are beginning, now, to imitate the Mexican by wearing the *serape* or blanket, and not a few wear the *sombrero*, or straw hat. The women wear a short petticoat, with their hair loose over their bare shoulders. Those in mourning for husbands killed in battle cut their hair short. The younger children go almost entirely naked. Those under the age of 2 years are carried in a kind of osier basket by the mother, in which the child is fastened in a standing posture. When on horseback, the basket is fastened to the saddle on the near side. The women dye their faces with a kind of paint, black or red, and the men daub vermilion on their faces, and also grease their bodies when they are about to go to war. The chiefs can have any number of wives they choose. The atrocities inflicted upon an Apache woman taken in adultery baffle all description, and the females whom they capture from their enemies are invariably doomed to the most infamous treatment. However, they do not scalp their enemies. They are fond of card-playing and of smoking (the calumet, or pipe of peace, has been superseded by the corn-shuck cigarito of the Mexican), and when idle are given to a monotonous kind of singing. When fighting they keep their horses in rapid motion, and are never at rest in the saddle. In their religious ideas they seem to favor the belief in one God; and Montezuma, or his spirit, is blended in their minds with a certain crude religious aspiration. They have a superstitious reverence for the eagle and owl, and for all perfectly white birds. They equally respect the bear, and refuse to kill it or to partake of the flesh. With regard to the hog, they have the same repugnance as the Jews and other Asiatic tribes. They dread the terrible rattlesnakes, with which the more barren and sandy region of the country abounds, and in their opinion, which apparently verges toward a faith in metempsychosis, rattlesnakes are evil spirits and repositories of the souls of bad men. They have hitherto kept themselves out of the reach of the labors of

Christian missionaries, Protestant as well as Catholic. In addition to the 8,000 Apaches proper in New Mexico, there are the Lipans in Texas, who originate from the Apache stock, numbering 500, and the Mus-ka-le-ras and Eupatops, in the same state, who are Apache bands mustering, respectively, 2,000 and 1,500 souls, according to the census of 1850. The Apache nation, as a whole, is one of the most widely disseminated on the North American continent, and embraces a great many tribes which are as yet only known to us by name. In the narrative of Mr. Bartlett, U. S. boundary commissioner, we find extensive accounts of their ravages in Sonora and Chihuahua. Mr. Bartlett and his party were frequently attacked by the Apaches, of whom he gives the following description: "The Apaches with which we had intercourse must rank below the Indian tribes east of the Rocky mountains, dwelling on the tributaries of the Mississippi and Missouri rivers. They are without that dignified bearing and those noble traits of character which characterize the latter; and as they perform no labor, not even that of hunting, their physical developments are greatly inferior. Mangus Colorado, and a few other prominent chiefs who live pretty well and have the lion's share of their plunder, are rather good-looking; and a finer set of children than those of Mangus, of Dalgadito, and Poncé, are not often seen. But beyond these few exceptions, the Apaches are an ill-formed, emaciated, and miserable looking race. As those we saw did not cultivate the earth, they depend upon what they can steal from the Mexicans and Americans on the frontier, for their subsistence. The supply they obtained consists almost exclusively of mules; and when this fails, they resort to the bulb of the maguay. In fact, this may be said to constitute at all times the food of the majority; for the chiefs take good care that they, at least, shall have mule meat when there is any." In Mr. Bartlett's opinion, the population of the Apaches is not so numerous as would appear from the census returns compiled by Mr. Schoolcraft.

APAFI, MICHAEL. I. A celebrated prince of Transylvania, born 1682, died at Wissembourg, April, 1690. In 1661, on the recommendation of Ali Pasha, he was elected commander-in-chief of the armies of the sultan Mohammed IV. He remained faithful to the Ottoman power until the siege of Vienna in 1683. After the ill success of the sultan's forces he transferred his allegiance forever to the emperor of Germany (1686). The Transylvanian diet took the oath of allegiance to the house of Hapsburg as hereditary monarchs of Hungary, July 1, 1688. Apafi left behind him an autobiography. II. His son, born 1677, died at Vienna, Feb. 1, 1718, was recognized by the German emperor, on the death of his father, as prince of Transylvania. Count Teleki, at the head of the anti-German party, and aided by the Turkish troops, disputed his rights. Teleki was event-

ually driven back by the imperial troops. As the emperor Leopold discovered that his protégé and vassal Apafi was about to be false to his allegiance and call in the aid of the Turks, he ordered him to Vienna, and made him abnegate all his rights as prince of Transylvania in consideration of a yearly pension. He died childless, and was the last native prince of Transylvania.

APANAGE, the ancient feudal provision made for the eldest son of the king of France. The law afterward came to include every property to which princes of the blood were entitled in their own right by descent. At the time of the revolution, the duke of Orleans was in enjoyment of revenues as a prince of the blood, and on the restoration of the Bourbons the conditions of the law revived, to be again finally abolished. The rights of apanage are still retained in Germany, and are applicable to the junior members of royal houses. The daughters and younger sons of England have no property in their own right; they are all dependent on the liberality of parliament; a liberality which is more frequently open to the charge of profusion than penuriousness.

APATHY (Gr. *a* privative, and *πάθος*, passion). Apathy denotes a low comparative degree of life and passion, in organic beings. The state of apathy may be normal or abnormal: the normal vitality of an oyster compared with that of a shrimp, is very low; one would be called apathetic, the other lively; but the abnormal state of the oyster itself, deprived of water, and half starved, would be prostrate and apathetic compared with the fulness of its real life in true conditions.—The life of a tree, in the temperate regions of the globe, is leafless, flowerless, and apathetic in winter, compared with the life of the same tree, verdant with leaves, blooming with flowers, and laden with rich fruit, in spring, summer, and autumn.—Apathy denotes a want of elasticity and vigor. A piece of sheet lead, which takes any form you give it, and remains inert and passive in the shape and form impressed upon it by external force, is a type of apathy compared with the elastic flexibility of a steel spring. Sensibility, activity, and energy, are the opposites of apathy: insensibility, indifference, inertness, and passivity, are the natural characteristics of apathy, in animals of the higher types of organization. A tortoise is an apathetic animal compared with a bird; the one drones slowly through a smouldering existence of protracted apathy, the other flutters rapidly through an ardent life of incessant motion and excitement. Apathy is not so much the absence of sensibility and passion as a low and slow degree of life: not so much an essential principle of organization as a state of comparative inactivity and lethargy; for animals of the lowest types of nervous organization have times and seasons of comparative activity and rest, animation and insensibility in their career; and man himself has similar alternations of state in the course of

his existence. The extremes of life are naturally apathetic in comparison with ardent youth and vigorous maturity. The infant sleeps through the long hours of night and day, in the first season of existence, and the aged person dozes through long days of apathy at the close of his career. Sleep is one kind of apathy; hibernation is another; bodily fatigue and mental exhaustion produce other states of apathy; prostration and disease, still other forms of dulness and debility; but these are not perhaps legitimate applications of the word. Apathy, properly defined, in application to organic beings of the highest order, signifies a vegetative life of low degree, allowing little force to be expended in external animation, or what is commonly termed animal life.—The human body is composed of a twofold mechanism, organic and relational, sometimes called the vegetative and the animal economy; in common language, the external frame and the internal organs. The one creates the blood and the internal forces; the other serves for work and locomotion, and expends the forces generated by the first. When the organic mechanism is comparatively weak in power and slow in action, the external frame is ill supplied with force, and becomes naturally apathetic: when the forces generated are renewed with vigor and rapidity within, the animation is abundantly displayed in the external life; sensibility, activity, and ardent passion are the outward signs, therefore, of a vigorous organic life within.—Reptiles generally have a low and slow degree of vegetative life, and consequent external apathy; but they have seasons of abundant animation, and are then by no means apathetic. Bears and hibernating animals have seasons of low and slow degrees of vegetative life, and consequent external torpor; but these seasons pass, and life becomes internally more vigorous, and externally more active and excitable. Some animals, however, have a large proportion of dull apathetic life, with brief displays of animation for a season, while others have a large proportion of vigorous animation, with mere passing fits of apathy and dulness.—The human constitution varies, in like manner, with different races and individuals; some are full of life and vigor, energy and enterprise, while others lack both energy and enterprise, and whine, or pine through an unproductive life of apathy and destitution.

APE (*pithecus*). The ape, zoologically considered, is a quadrumanous animal of the class mammalia, nearly approaching the human race in anatomical structure, although with differences far broader and more characteristic than is generally supposed. Commonly speaking, we distinguish the ape from the baboon, by the fact that the former has no tail at all, while the latter has but a short one; and the baboon from the monkey by the fact that while the former has but a short tail, the latter has one so long and prehensile that he uses it ordinarily as a fifth hand. According, however, to the mod-

ern zoological definition, the genus ape, or *pithecus*, comprises those quadrumanous mammals which have the teeth of the same number and form as in man, and which possess neither tails nor cheek pouches. This definition, while it excludes certain tailless baboons and monkeys, comprehends, on the other, the three subgenera of orangs, chimpanzees, and gibbons. The organization of these animals approaches that of the human species, although their points of inferiority are numerous. Their arms almost touch the ground when they stand erect on their hind legs; but the legs are scarcely a third part of the entire height. The legs are not on the same line with the thighs; the knees are turned outward, and the soles of the feet turn inward, so as to be opposed to one another. The apes are thus enabled to grasp the trunks of trees with much greater force than if their members were constructed like our own. The fingers and toes are long, flexible, and deeply separated from one another; and the thumb, or interior finger, is completely opposite to the other four, as well on the hind as on the forearms. Thus their hands and feet are equally well formed for grasping, and can be used indiscriminately. Hence, apes are neither two-legged and two-handed, like the human race, nor four-footed, like quadrupeds, but four-handed, *quadrumanous*. When they walk erect, which they rarely do without the aid of a staff, or of their forearms, owing to the oblique articulation of the lower extremities, they rest only on the outer edge of the feet, or posterior hands, not upon the soles, or palms, as they should be more correctly termed. This gives them a tottering and uncertain motion, to remedy which, they place the fists of their long arms on the ground, and move precisely in the attitude and at the pace of a lame man going on crutches; their mode of progression not having the slightest similarity or relation to that of either man or quadruped. Consequently, while on the ground, they are singularly slow, inert, and helpless animals; being, on the other hand, when in their native forests, the most agile of all creatures—their long arms being used at one time, to grasp distant boughs, from one to another of which they can swing themselves with a velocity and to a distance, causing their progression to resemble that of a bird more than that of any wingless creature; while, at another, outstretched horizontally, like a rope-dancer's balancing pole, they enable them to walk with the most perfect ease and equilibrium on the most precarious and uncertain foothold. It is well remarked, that the tail, which is, chiefly of use to the smaller monkeys as an instrument for adjusting the proper balance of the body, would be to the apes a serious incumbrance, and useful in no contingency. The character and habits of the great apes, in a state of nature, are little understood. But, notwithstanding the gentleness and docility of those brought young from their native climates, there is reason to doubt whether in their native wilds

they do not become, as they grow old, fierce, dangerous, and, perhaps, even carnivorous; for, although the number of their teeth and the formation of the molars and incisors precisely resemble those of the human being, the canines are developed in the same relative proportion as in the carnivora. So much so, that the tusks of a full-grown orang-outang are fully equal to those of a lion. In confinement, however, they are almost wholly free from the mischievous and petulant curiosity and violent fits of passion which characterize the smaller monkeys; are deliberate in their actions, circumspect, intelligent, and susceptible of a high degree of attachment to those who take care of them, or with whom they consort. They have two singular points of resemblance to man, in their habits, which are worthy to be contrasted with the structural dissimilarities which have been insisted on above: 1. They do not repose, like the other monkeys, squatting on their hams, but stretch themselves on their sides, like human beings, and support their heads on their hands, or find some natural substitute for a pillow. 2. Alone of animals, they use other means of defence or attack than their own natural means, strength, and weapons, readily betaking themselves to the use of stones and clubs, which they wield with considerable dexterity, either hurling them as missiles, or using them hand to hand. Of the apes, the chimpanzee, perhaps, approaches the nearest to man; but it is proved, by the accurate investigations of modern naturalists, that the interval between them is as wide and as characteristic as that existing between many races of inferior animals, between which no connection has been pretended, in spite of the efforts of Bory de St. Vincent to retain man and the orangs in the same zoological family. The structural differences, easily recognizable by a comparison of the skeletons, are such as cannot be dealt with in a work of this nature, but they are conclusive. The formation of the skull, alone, as compared with that of the most abject human idiot, is unmistakably brutal; while all the discrepancies of the osseous formation are distinctly referable to original formation, and are neither to be induced by any possible degradation of the human species, nor by any cultivation of the anthropoid apes. The chimpanzees are classed under the sub-genus, *troglodytes*. They are principally, if not entirely, natives of Africa, for there appears to be a characteristic difference between these animals and the great apes, or orangs, of the Indian archipelago. There are 2 species of the chimpanzees found in Africa. The *troglodytes niger*, or black chimpanzee of Sierra Leone; and the *troglodytes gorilla*, or great chimpanzee of the Gaboon river. The latter and larger of these animals has never been brought to Europe or America; and it is the opinion of the persons best qualified to pronounce an opinion, that, however docile and tractable these apes may appear while quite young, their gentle manners give way in the

adult to unteachable obstinacy and untamable ferocity. They are said to construct a sort of rude hut of leaves and brushwood, to fight with sticks and stones, and lastly to carry off negro girls and retain them as concubines in their societies in a state of hideous captivity. These latter tales, long discredited as travellers' exaggerations, seem now to be authenticated, beyond the possibility of doubt. It is very remarkable that a similar story prevails in the interior tropical regions of South America, where no anthropomorphous ape is known to exist, of a huge, ferocious man of the woods, master of all the animals of the forest, addicted to carrying off Indian girls and compelling them to his cruel embraces. It is called by the natives and missionaries, neither of whom entertain any doubt of its existence, the *salvaje*; and they hold it in great dread. Father Gili relates the history of a lady of San Carlos who was carried off by one of these animals, and who was subsequently brought back, together with a family of children, which she had borne in this hideous union, by certain hunters who discovered her in the forest, after years of captivity and rape; but this must be set down to exaggeration, in the latter portions at least; although it is quoted by no less an authority than the Baron Humboldt. The second species is the orang-outang, *pithecus satyrus*, of the eastern archipelago, generally known as the red-orang. It is an inhabitant of the islands of Borneo and Sumatra. Its height is under 5 feet, and its fingers, when it stands erect, reach to the ankle joint. This is the orang-outang which is so frequently exhibited in menageries; and which affords so much entertainment to visitors, by its human appearance, and human mode of doing things, which are ordinarily mistaken for human intelligence. It is easily taught to drink tea, or wine, out of a glass or other vessel, to use a knife and fork, and even to smoke tobacco; which tricks naturally induce the unobservant and unreflecting to ascribe to the beast intelligence, reflection, and powers of comprehension, almost human; whereas they, in truth, only show the strong imitative powers of the animal, assisted by the conformation of his hands, and frame in general; which enables him to represent, perfectly, the actions and motions of the human being, in such a manner as can be done by no other animals, owing to the differences of their physical structure. In their mental powers, or intelligence, the apes in nowise approach the dog, the elephant, the horse, although their natural facility of imitating human action has obtained for them the credit of approaching nearly to human comprehension. The third and last species of the apes to be noticed, is the gibbon, *hylobates*, or the wood-walker, so named from its astonishing agility among the forests which it frequents. It rarely exceeds 4 feet in height, and some of the kinds are under 3; and, when standing erect, its arms reach fully to the ground. It is common all over India and the

there are 4—the hoolock, *hylobates hoolock*, the ourgha, *hylobates agilis*, the gibbon, *hylobates lar*, and the silvery gibbon, *hylobates leuciscus*—the gentlest, the most docile, and the most attached to its keepers, of all the ape family. It is shy and timid, but, at the same time, easily reassured; it loves to be caressed, is singularly fond of, and attentive to, its young; and, in confinement—which is necessarily irksome in the extreme to an animal whose habits are of the most incessant and rapid activity when in a state of nature, while, from its inability to move easily on a plane surface, it is forced to an uneasy and unnatural quietude when kept a prisoner, even with the largest liberty, compatible with domestication,—it is observed never to be happy unless in company with the person, or persons, to whom it has attached itself, and who endeavor to lighten its captivity. It was formerly much the fashion, with both sexes, to keep apes and monkeys in a state of familiar domestication, as pets—but it is a practice gone, fortunately, into disuse; since, caress the unfortunate animals as much as one might, they still must be miserable, melancholy, and moping, when cribbed within the four walls of a modern house, instead of gambolling unrestrained in the free, fresh breezes, among the undulating topmost branches of their boundless forests. They are now rarely kept, except in collections of animals for scientific purposes, such as the *Jardin des Plantes* in Paris, or the zoological society gardens in London; where, as far as possible, the circumstances and character of their places of captivity are adapted to their native climates and habits; and where they are subjected to as few inconveniences and restrictions, contrary to nature, as can be dispensed with in view to retaining them in confinement.

APEAK, in nautical language, signifies perpendicular; thus the anchor is said to be apeak when by drawing in the cable it hangs perpendicularly to the stem of the ship.

APEL, or **APELLUS**, **JOHANN**, professor of law in the university of Wittenberg, and one of the most ardent supporters of Luther in the work of the reformation, was born at Nuremberg in 1486, and died in 1540. His published works are *Defensio Joh. Apelli pro suo conjugio* (he had married a nun while canon of Warzburg), *Methodica Dialectices Ratio, ad jurisprudentiam accommodata*, and *Brachylogus juris civilis, sive corpus legum*. The latter was at one time supposed to have been written by the emperor Justinian.

APELLES, a celebrated Greek painter, born, according to Pliny and Ovid, in the island of Cos; according to Suidas, at Colophon; but Strabo and Lucian call him an Ephesian. He appears, however, to have been such only by adoption, and to have studied at Ephesus. Apelles was engaged in his profession from about 848 to 804 B. C. His instructors were Ephorus the Ephesian, Pamphilus of Amphip-

næus, Arcesilanus. The masterpiece of Apelles was his Venus Anadyomene, or Venus rising from the sea. This painting was ultimately placed by Augustus in the temple of Julius Cæsar, where it was gradually destroyed by age. It is said that Alexander the Great would allow no one but Apelles to paint his portrait, and one painting of that master representing Alexander holding a thunderbolt, was sold for \$200,000. On one occasion, when contemplating a picture by Protogenes, a work of immense labor, and in which exactness of detail had been carried to excess, he remarked, "Protogenes equals or surpasses me in all things but one, the knowing when to remove his hand from a painting." He was accustomed, also, when he had completed any one of his pieces, to expose it to the view of passengers, and to hide himself behind it in order to hear the remarks of the spectators. On one of these occasions, a shoemaker censured the painter for having given one of the slippers of a figure a less number of ties than it ought to have had. The next day the shoemaker, emboldened by the success of his previous criticism, began to find fault with a leg, when Apelles indignantly put forth his head, and desired him to confine his criticisms to the slipper. Hence arose the expression "*ne tutor ultra crepidam*," let not the cobbler go beyond his last.

APELLLIANS. The Marcionites, who flourished about A. D. 140, were early divided into 3 sects, the leaders of which were Marcus, Lucas, and Apelles. This latter was the founder of the Apellians. They flourished about the beginning of the 8d century. The origin of the Apellians was as follows: The Marcionites embraced Dualism, but without much profundity of speculation; they constituted the practical branch of Dualists. Apelles was of a speculative turn, and resided for some time at Alexandria, where his Marcionite views were modified by the Monadism of that school. Ever after, he says he believed Monadism, but could demonstrate Dualism. Consequently the Apellians formed a mediate party between Marcionism and the Alexandrian theology.

APELLICON or **TEOS**, a Peripatetic philosopher, who had a mania for collecting books, and was not very fastidious as to the means by which he acquired them. If he saw a rare work which he could not purchase, he would, if possible, steal it; and once he was near losing his life in Athens on being detected in the prosecution of this practice. He, however, formed a magnificent library, which was brought to Rome by Sylla, after the death of Apellicon in the year B. C. 84. This library contained autographs of Aristotle's writings, which had been found in a cave in Troas, and purchased by Apellicon. These autographs were afterward transcribed at Rome by Tyrannion, the grammarian, who sent copies of them to Andronicus of Rhodes, which became the basis of that philosopher's edition of Aristotle's works.

APENNINES, a chain of mountains in Italy, which having detached themselves from the Low Maritime Alps, at Mount Cassino, extend through the whole Italian peninsula, following the line of the coast, at a distance of from 6 to 15 miles. Many geographers include, also, as a part of this chain, the mountains of Sicily and Sardinia, which, from their geological structure, give evidence of having been, at some remote period, connected with the peninsular range.—The Apennines are greatly inferior in height to the Alps; the average height of the range does not exceed 4,200 feet. Its highest peak, Monte Corno, in Naples, according to Schouw, does not exceed 9,542 feet in altitude, while few of the others rise above 6,500 feet. No portion of the Apennines rises to the limit of perpetual snow.—The range, with the low lines of hills which are connected with it, and which have received the name of sub-Apennines, is divided into 6 portions, which take their names from their relative geographical positions, the northern, the central, the sub-Tuscan, the sub-Roman, the southern, and the sub-Vesuvian Apennines. The whole length of the chain, from Mount Cassino to the straits of Messina, is 840 miles.—The northern Apennines extend from Mount Cassino in 8 branches, or versants; the first running S. and then N. E. to the Bocchetta, a distance of 72 miles. Its highest summit is the Bocchetta, 6,660 feet high; the second stretches E. and S. E. from the Bocchetta, separating the duchies of Parma and Modena from the principalities of Massa, Carrara, and Lucca. It is 108 miles in length. None of its summits are very high; the Sopotario, the Gottio, and the Jorame, are the principal; the third branch is a mountain mass, extending S. S. E. from the last, and separating the northern part of the states of the church from Tuscany. It is 68 miles in extent. The sources of the Tiber and the Savio are both in Monte Cornaro, one of the summits of this versant.—The central Apennines commence at Monte Cornaro, and form a low barrier across the states of the church, extending to Monte Velino, a distance of 138 miles. Their general course is S. S. E. Their most elevated summit is Monte Ascoli, 7,228 feet high. Castelluccio, a village situated on one of the passes of this division of the Apennines, is 4,766 feet above the sea.—The sub-Tuscan Apennines are a distinct group of low mountains, covering the greater part of Tuscany, forming the water-sheds of most of the streams which water the grand duchy and its vicinity, but nowhere rising to any considerable elevation. Their two principal branches surround, nearly in a semicircle, the district known as the Maremma of Sienna, whose putrid marshes, exhaling a deadly malarial, the travellers from Florence to Rome have learned to dread.—The sub-Roman Apennines are a similar group, extending over the southern part of the ecclesiastical states, connecting several hills of considerable note, such as Cantaro, Oroglio, Acuto, Carbonaro, Ceroas,

and Campatri, and finally spreading out toward the W. S. W. in the Campagna di Roma. Another branch terminates in the 7 hills of Rome.—The southern Apennines have the form of a fork with two unequal prongs. The handle of this fork, the upper southern Apennines, extends from Monte Velino toward Acerenza in the Basilicata; one of the branches, or prongs, traverses the Terra de Bari, and the Terra d'Otranto, and terminates at Cape Lucca; the other, or inferior branch, runs across the Calabria to the strait of Messina. It has a number of sharp pyramidal summits, though none of great altitude. The most remarkable of these are Monte Forcone, Monte St. Angelo, Monte Chilone, and Monte Calvello.—The sub-Vesuvian Apennines are a series of low mountains, running nearly parallel with the southern range, and unite by a common base Mount Somma and Mount Vesuvius. The promontory of Il Monte Gargaus deserves mention in this place; it extends from Monte Chilone, and is 60 miles in length, constituting what is usually termed "the spur of the boot," in the map of the Italian peninsula. It terminates in a mountain 5,800 feet high.—With the exception of a small tract of the northern Apennines adjacent to the Alps, and another at the southern extremity, where the granitic rocks make their appearance, the geological formations of the Apennines are either metamorphic or secondary, and among these the limestones greatly predominate. The white, compact marble of Carrara, the sea-green marble of Bocchetta, the Italian verd-antique, or serpentine marble of Florence and Prato, the yellow marbles of Sienna, and the marble of Porto Venera, near the Gulf of Genoa, are the most remarkable of these. Most of the limestones of the range being metamorphic, present no traces of fossil remains. The sub-Apennines are formed, to a considerable extent, of tertiary deposits. These are highly fossiliferous. In the volcanic district, which lies almost wholly within the kingdom of Naples, are found the products of volcanic eruptions, and on the plains and marshes in the vicinity, large deposits of sulphur. Some of the eminences in the volcanic region discharge mud, from others carburetted hydrogen is evolved. To the height of 8,000 feet, the Apennines are clothed, for the most part, with evergreen oaks, chestnuts, and other forest trees. The higher portions of the principal range are formed of bare and rugged rocks, which are covered with snow from October till May. Their general aspect is far from attractive. The grand and majestic scenery of the Alps is wanting, and while their summits and flanks appear bare and meagre, from the want of vegetation, the sombre hues of the forests give them a dreary aspect. The scenery of the southern division, as well as of most of the sub-Apennines, is of a more lively and agreeable character. The olive, the laurel, the orange, lemon, palm, and other tropical trees, diversify, by the varied hues of their foliage, the

landscape, and refresh the wearied eye of the traveller. The Apennines are very fully described by Malte Brun, Balbi, Hausmann, Bruguère, Schouw, the author of the *Geographie physique de Royaume de Naples*, Ungewitter, and others.

APHEK, the name of several cities spoken of in the Bible. I. A city of the tribe of Asher, probably the same with the Aphaka which Eusebius places in Lebanon, and where there was a famous temple of Venus. II. A town near which the Jews defeated Benhadad (1 Kings xx. 26), situated on the east side of the sea of Galilee. III. A city of the tribe of Issachar, near Jezreel, where the Philistines encamped on two occasions before fighting the Jews (1 Sam. iv. 1; xxix. 1).

APHELION, a word of Greek derivation, signifying, from the sun, that point in a planet's orbit most remote from the sun.

APHIS, the plant louse, or *puceron*, a very numerous genus of insects included in the order *homoptera*. The number of species is also very large: 826 are described in Francis Walker's list of specimens of "homopterous insects" in the collection of the British museum. Almost every sort of plant furnishes a living to a different kind of aphid. The attacks of these insects are often ruinous to certain crops. In 1802, the annual crop of hops in Great Britain was reduced to one-seventh of the usual average, owing to the destructive swarms of the aphid; and the average crop is only one-fifth of the natural crop, in seasons when the aphid is not prevalent. The *A. rosa* is also most destructive to the rose tree, on which it is constantly found. Apple trees and pear trees are attacked by a species of aphid which injures their fruit. Cabbage and turnip crops are sometimes greatly injured, and, in many cases, destroyed by countless swarms of the *A. brassicae*. Their attacks on all plants seem to be regulated by the health of the plant and the peculiarities of the season. If atmospheric conditions render the plant unhealthy, then the aphid appears; if these cease, the aphid disappears; and one crop of plants may be attacked several times in the same year.—Most species of this insect are green; but a dark species, the bean-dolphin, or *A. faba*, attacks the bean; whole acres of the plant being suddenly covered by these black insects.—They have, however, many destructive foes. The larvæ of the lady-bird (*coccinella*), the *syrrhus* or bee-like fly, the *hemerobius perla*, and several species of *ichneumonidæ*, pursue and eat them very greedily. Tobacco is the principal remedy against destructive swarms of the aphid. In conservatories, or where plants can be placed under cover of any kind, they may be easily exposed to clouds of tobacco smoke; and that is the simplest way of destroying the aphid; but in the open air, where the fumes of tobacco easily disperse, the best way is to apply the tobacco in water. The affected parts may be syringed with the infusion of to-

acco, and after the insect is produced, the plant may be washed by the rain or with pure water.—These insects have a soft, roundish body, a small head, complete and half globular eyes, antennæ of from 6 to 11 joints, longer than the head, and often hairy. The beak has its origin from the lower part of the head, between the fore legs, and is nearly perpendicular. The wings, when developed, are 4 in number, but some naturalists describe the upper wings as *elytra*, or wing cases, from their difference of texture. The legs are very long and slight. At the extremity of the belly, most kinds of aphids are provided with a pair of horn-like processes, through which they eject a sweet, thickish fluid, commonly called honeydew, of which ants and bees are very fond.—At the end of autumn many of the species, such as the *A. quercus* and the *A. rosa*, of both sexes, are numerous, some winged, and some without wings. While some can fly to a distance, others, without wings, are restricted to the neighborhood of their native plant. As soon as she has paired, the mother aphid deposits her eggs or larvæ in a place fit for passing the winter; different places being selected by different species. Some prefer the oak, and leave their eggs on some waving bough high in the air; others in the crevices of the bark, or in a subterraneous receptacle. Bonnet supposes that the aphides are always viviparous, and never lay eggs; what are commonly called eggs produced in the autumn being a sort of cocoon, containing the young aphid enclosed in an envelope. This point, however, is not universally admitted. The parents die after disposing of their eggs or cocoons, and these remain torpid during the winter, to be called into active life with the return of reviving warmth or of blight in spring. All the aphides which appear in spring are females, no males being seen till autumn. These females are endowed with a most wonderful fecundity. Latreille states that one female, during the summer months, will produce 25 daily; and Réaumur calculated that one aphid may be the progenitor of about 6,000,000,000 of descendants, in its own lifetime. It is not necessary for the young female aphides hatched in the summer, to pair with males, for no males are found until autumn, and yet these females will produce each their 25 a day of living young ones, all of which in turn hasten to imitate their parent. The *A. lanigera* produces each year, says Prof. Owen in his lectures on comparative anatomy, 10 viviparous broods, and 1 which is oviparous; and each generation averages 100 individuals. The progression being 1; 100; 10,000; 1,000,000; 100,000,000; 10,000,000,000; 1,000,000,000,000; 100,000,000,000,000; 10,000,000,000,000,000; 1,000,000,000,000,000,000; 10,000,000,000,000,000,000; 1,000,000,000,000,000,000,000; for the 10 viviparous broods; and by adding the oviparous generation, the result is 30 times greater. The female aphides thus produced are considered as larvæ, presenting a more developed condition than the larvæ of coleoptera and lepidoptera. The compound

eyes are completely developed; the antennæ have attained their perfect shape and proportions; the 6 thoracic legs their full size and power. The only subsequent change of these fertile larvæ is an additional size and the manifestation of the organs of reproduction. In the last generation, which is the 7th, the 9th, or the 11th, according to the species of aphid, the spontaneous power of reproducing their species is totally lost; wings are developed, and winged male insects now make their appearance. These are the winged insects which produce eggs, and deposit them where they may be hatched by the sun in times of blight. The number of aphides which appear in spring must, of course, depend on the number of eggs laid in the preceding autumn; but countless swarms of them being ushered into life at the same time, has led to the popular notion that they are generated by the atmosphere.

APHORISM (Gr. ἀφορισμός, to separate or divide), a short, sententious saying, embodying a fact or truth. Aphorisms are both natural or scientific, and moral or ethical. Hippocrates and Boerhaave have written medical aphorisms. Coleridge illustrates the meaning of aphorism by the childish practice of dissecting a map of a country. Many instances of aphoristic writing might be cited. Bacon's *Novum Organum*, and C. O. Colton's "Lacon," are familiar examples. Aphorisms teach by authority, not by argument. Anciently they were, therefore, more in use in science than they are now. Aphorisms are useful as a mode of putting into condensed form for the memory the results of scientific or experimental investigation. There is great beauty in aphorisms, those

"Jewels, five words long,
That, on the stretched forefinger of all time,
Sparkle forever."

APHRODISIAC (Gr. ἀφροdisia, scum of the sea; one of the names of Venus, who is supposed to have been born of the sea). The word aphrodisiac is applied to certain drugs which are supposed to excite venereal desires and powers. Many stimulant drugs have been said to produce these effects, but only two are now positively known to affect the generative organs strongly; and these are phosphorus and cantharides. These produce a morbid excitement, a prurient congestion, without real power. This excitement is always dangerous and never fruitful.

APHRODITE, one of the chief Greek divinities, the goddess of love and beauty. In the *Iliad* she is described as the daughter of Zeus and Dione; a later legend relates that she sprung from the foam (Gr. ἀφρος) of the sea, and is hence called Aphrodite. She first came to land at the island of Cythera, and thence proceeded to Cyprus. These islands were her principal seats of worship, and hence came many of her epithets (Cytherea, Paphia, Cyprus). Hephaestus (Vulcan), the deformed smith of antiquity, was her lawful husband, but the goddess of beauty did not greatly fancy

him. Hermes (Mercury), Poseidon (Neptune), and Ares (Mars), were her favorites. Her amours were not restricted within the celestial circle. Adonis was the happy young mortal who inspired her with the fondest passion. This connection has given rise to one of Shakspeare's miscellaneous poems, the "Venus and Adonis." She bore Æneas to Anchises. In the Trojan war she sided with the Trojans, and in protecting her son Æneas from the Greek hero Diomed, was wounded by the latter, and ran shrieking up to Olympus. She surpassed all the other celestials in beauty, and received from Paris that apple, the prize of beauty, which indirectly brought about the Trojan war. Her peculiar attribute is the *cestus*, or embroidered girdle, which had the power of inspiring a devouring passion for the person who wore it. Her favorite animals were the swan, the sparrow, and the dove; her favorite plants the rose and the myrtle. The planet Venus and the month of April were also sacred to her. She appears to have been identical with the Phœnician Astarte or Ashtoreth, as the tale of Ashtoreth and Thammuz, is the counterpart of that of Adonis and Aphrodite. To the Italians she is known as Venus. The Roman goddess has no distinct attributes. Many representations of the goddess in sculpture are extant. A picture which Apelles left incomplete no one ever ventured to finish. Festivals in her honor, Aphrodisia, were celebrated in many of the cities of Greece and in Paphos.

APHTHARTO-DOCETÆ, in ecclesiastical history, a name given to the followers of Julian of Halicarnassus, who taught A. D. 519 that the body of Christ was divine and incorruptible from the moment it was conceived. They were also called *docetæ*, because they contended that the physical sufferings of Christ were only seeming. This opinion was favored by the emperor Justinian, and was the cause of much discussion in his reign.

APHTHONIUS, a Greek rhetorician, who lived about A. D. 315. Of his life nothing is known. His writings, which have come down to us, are an elementary introduction to the study of rhetoric, which bears the title *Progymnasmata* (προγυμνασματα), and a number of fables. The *Progymnasmata* was prepared for the use of boys, before they went to the regular schools of the rhetorician, and was founded on a similar work by Hermogenes, previously in common use. For several centuries this treatise was employed in common schools as a text book of rhetoric, and, on the revival of learning, was again brought forward for a similar purpose, and in the 16th and 17th centuries was universally employed, especially in Germany. Many editions of it have been published. The best is among the *Rhetora Græci*, Stuttgart and Tübingen, 1832-35. The fables written by Aphthonius are of less importance. They are in the style of Æsop, but considerably inferior in merit.

APIANUS, *Petrus vox*, a German astrono-

mer and mathematician, born near Leisnig in Saxony, 1408, died at Ingolstadt, 1552. His name was properly Bienewitz or Bennewitz, from *Biene*, a bee, Lat. *apis*, whence Apianus. In 1528 he was made professor of mathematics at Ingolstadt, and he also enjoyed the favor of the emperor Charles V., who, beside conferring other distinctions on him, raised him to the rank of a noble. Apianus is said to have been the first who remarked that the tails of comets are always directed away from the sun, and to have also pointed out the method of obtaining longitudes by lunar observations. Among his works may be mentioned *Tractatus Cosmographia*, 4to, Landshut, 1524, a work similar to modern handbooks on the use of the globes; *Astronomicum Caesarium*, fol., Ingolstadt, 1540; and several others.

APICIUS, the name of 3 noted Roman epicures. I. Called by Athenæus *one Apicius*, lived in the latter part of the 1st century B. C. He spent much of his time, at intervals, in Latium, on account of its excellent lobsters, but having heard that the Libyan lobsters were larger, set sail for Africa. Several fishermen came off to his vessel with the finest; but, seeing that they were inferior to those of Minturnæ, he ordered the pilot to steer for Italy. He is said to have procured the banishment of Lentulus Rufus, B. C. 92. II. M. GABRUS, who lived in the time of Augustus and Tiberius, is mentioned by Seneca, Pliny, Dion, Juvenal, Martial, and Athenæus. He established a school where the art of good cooking was taught, greatly to the distaste of the philosophers. In the cultivation of his own appetite and that of his scholars, he had expended a fortune, more than \$4,000,000, when he settled up his accounts, and perceiving that but \$400,000 remained, concluded that he could not live as he wished upon that sum, and poisoned himself. He invented several sauces and cakes which long bore his name. Apion, the grammarian, made his life and labors the basis of a volume; and all cooks, for centuries, belonged to the Apician or anti-Apician faction. III. A contemporary of Trajan, who taught the world how to pickle oysters.—A treatise, *De Re culinaria*, or *De Obsoniis et Conditimentis*, &c., bearing the name of Cælius Apicius, by an unknown writer, is the most ancient cookery book in the world, and has been often reprinted.

APION, a Greek grammarian and teacher of rhetoric, who lived at Rome, in the 1st century of the Christian era, was the son of Poseidonius, and by birth an Egyptian. The emperor Tiberius styled him *cymbalum mundi*, on account of his excessive loquacity and vanity. Apion received his education at Alexandria, where he studied under Apollonius and Didymus. In the reign of Caligula, Apion placed himself at the head of a deputation of Alexandrians who had come to Rome to complain against the Jews to the emperor. He is chiefly celebrated as a commentator on Homer. The most valuable

portions of his "Homeric Lexicon" are supposed to be embodied in that of Apollonius.

APIS, a bull worshipped by the Egyptians. In their mythology the soul of Osiris, murdered by the evil spirit Typhon, migrated into this bull. It was, therefore, the symbol of creative productivity and of fertility. The calf was born from a cow made pregnant by a ray of the sun and of the moon. It must be black, with a white square sign on the forehead, the sign of an eagle on the back, various other mystical signs on various parts of the body, and a scarabæus under the tongue. Its principal worship was in Memphis, in the temple of Ptah (Hephæstus, Vulcan, or fire). When such a calf was found, the priests transported it in a chariot, with great pomp, to Heliopolis, where it was kept in a temple, accessible to the worship of the people for forty days. During this time women wishing to become mothers cohabited with men publicly under the eyes of the divinity. After that lapse of time no one could approach him, and he was transported to Memphis, where he had his own temple, with chapels and courts for exercise, and his own priests. His choice as to which of these chapels he would stay in, his appetite, and movements, were regarded as oracles. His theophany or sacred days were yearly celebrated at the rising of the Nile, with great festivities and rejoicings. A golden vase was then thrown into the Nile to propitiate the crocodiles. His lifetime was of 25 years, in harmony with one of the theological-astronomical cycles of the Egyptians. He then was usually thrown into a pit, but sometimes embalmed and preserved in a costly sarcophagus. After the death of one, and before the finding of another Apis, the whole land was in mourning. Apis in heaven was placed in the constellation of Taurus.

APLANATIC LENS, a lens of such figure as to bring all the rays of light which fall upon it to a perfect focus. This requires a form which cannot be given mechanically; and, as a substitute, a lens is made whose two sides curve in spheres of a certain proportion to each other. The resulting error is called spherical aberration, and, in the best lenses, is to a great extent removed by careful and delicate polishing by hand, until the image made by the lens is satisfactory to the artist. See also ACHROMATIC.

APOCALYPSE (Gr. ἀποκάλυψις, unveiling), the title of the closing book in the New Testament canon, written, it is supposed, in Asia Minor, in the interval between the death of Nero and the fall of Jerusalem, A. D. 68-70. Its authorship is much disputed. But while scholars are not agreed upon the testimony given by the book itself, the church tradition for two centuries is favorable to its being a writing of John the Apostle. Justin Martyr avows his belief in its apostolical origin. Irenæus (A. D. 178) assumes it as a conceded point. At the end of the 2d century, we find it accepted at Antioch, by Theophilus, and in Africa by Tertullian. At the beginning of the 3d century, it

is adopted by Clement of Alexandria and by Origen, later by Methodius, Cyprian, and Lactantius. Dionysius of Alexandria (A. D. 247) rejected it, upon doctrinal rather than critical grounds. Eusebius (A. D. 315) suspended his judgment, hesitating between the external and the internal evidence. The opinion of the more moderate critics of the present day is that the voice of antiquity favors the genuineness of the book. But the question of authorship has been debated on other than critical grounds, a wide difference being recognized between the Apocalypse and the Gospel of St. John. Those who believed that the apostle wrote the Gospel have doubted whether he wrote the Apocalypse, and they who ascribe the latter to the apostle, deny that he could have written the former, though it has been suggested that he produced the Apocalypse in his youth, and the Gospel in his old age. No book in the New Testament has proved so difficult of interpretation as this; none has called forth such efforts of learning and sagacity, no tradition having come down from the earliest time to tell us how it was understood by the age in which it was written. The volume, standing alone, has offered itself as a mark for random conjecture. We find it first in great favor among the expectants of a millennium, who derived much support from its literal text. In this interest it was used by Justin, who based upon it his belief in a Messianic reign of 1,000 years, and by Irenæus, who found in it his doctrine of a double resurrection, an antichrist, a Messianic kingdom, a new Jerusalem, a palpable temple and altar in heaven. Tertullian, also, quoted from it liberally to sustain his peculiar chiliastic views. And in fact, so late as the 4th century, the book was debatable ground for the disputants about the second advent. The next phase in the interpretation of the Apocalypse was the allegorical. This may be said to have commenced in the 5th century, with Andray of Cappadocia, who regarded the book as designing to shadow forth, in figurative style, the mysteries of the future time, and for 8 centuries after him, this portion of Scripture was much used in this vague and mystical way, both in the Latin and the Greek churches. In the hands of different sects, it was made to assume a partisan character, as if it described actual controversies between church and state, and was interested in the theological disputes that agitated the time. In the 10th century, the popular dread of an impending destruction of the world excited a special interest in the Apocalypse, which was without any result as respected its elucidation. In the 12th century, it was studied as containing, under the form of symbol, a history of the Roman church in its various struggles. Innocent III. found clearly indicated there the overthrow of the Saracenic rule; and when, later, heretics were the foes of the church, the marks of the doomed antichrist were affixed to these. As the heretics grew stronger, they in turn took advantage of

the lesson the church had taught, and brought the same figurative style of interpretation to bear against the ecclesiastical power. The scarlet woman and the beast denoted the papacy. Gregory called Frederic II. the apocalyptic beast that rose from the sea, labelled blasphemy, and Frederic retorted by calling the pope the great dragon that drew down a third part of the stars of heaven. The Protestants, before the reformation, and long after, used the Apocalypse as a magazine of weapons against the holy see. In fact, Luther, and the Protestant theologians, down to the 17th century, had no doubt that hostility to the pope gave the only key to the dark volume. In 1650 Grotius attempted to recover a more unprejudiced position toward the book, but the age was not prepared for a calm literary view. In 1690 Bossuet wrote his celebrated commentary, giving mainly the same opinion with Grotius, that the Apocalypse contained a revelation of the future of the whole Christian church, and his work is still an authority among the Roman Catholics. The Apocalypse began now to be studied more as a literary production, in the spirit of historical criticism. Abenzig, in the 18th century, suggested that its meaning should be confined to the age in which it was written. He was disposed to view it as a symbolical prediction of the fall of Jerusalem, and found an explanation of the numbers and figures in the incidents of the Jewish war. This hint was taken by the poet Herder, who clothed the conception with the brilliancy of his own religious imagination. These attempts at exposition were followed by the theory of Eichhorn (1791-1811), who exerted great learning and skill to prove the Apocalypse to be a dramatic poem. He divided the book, after the prologue, dedication, author's narrative, and prologue, into 3 acts: the 1st painting the fall of Jerusalem, and the overthrow of Judaism; the 2d describing the downfall of Rome, and the triumph of Christianity over Paganism; the 3d, portraying the heavenly Jerusalem, and the glories of the future life. His exposition is now generally abandoned. In 1833 Lücke published his "Introduction to the Apocalypse," whose leading idea he states to be, the future and completion of the kingdom of God, its victorious battle with all worldly opposition, Jewish and Gentile, its triumph over Satan himself, and its final glorious and blissful establishment. The book is at once a poem and a prophecy, a mighty song of faith lifted up in an age of persecution and fear, to comfort and strengthen the heart of a distressed church, all its allusions bearing on a state of things actually transpiring, its numbers and symbols describing real persons and events of the time, its warnings and promises being addressed to people trembling at the prospect of an impending crisis. The aim of the book is not theoretical but practical. Since Lücke's exposition, little has been done to explain the general scope of the Apocalypse, but much to

elucidate its details. We have deferred to this point all notice of Swedenborg's peculiar theory of the Apocalypse, for the reason that it could not be classified with any others. Swedenborg judged the books of Scripture by their internal or spiritual sense. He paid little heed to critical proofs. Doctrinal, historical, and literary considerations, he held in light esteem. The test of a book's canonicity was its inspiration, and the test of its inspiration was its richness in spiritual thought. Hence no scripture of the New Testament stood higher in his regard than the Apocalypse, which he made constant use of, not as an allegory, or veiled history, not as a poem, drama, or prophecy referring to human events, near or remote, but as a symbolical revelation of divine truths, the book of all others which was least cumbered by literal allusions to mundane things, and was most remarkable for the completeness with which it enshrined the Heavenly Word. This view is confined to the followers of the Swedish seer, and has met with no favor from scholars or theologians in general.

APOCALYPTIC KNIGHTS were a secret society founded in 1692 by Agostino Gabrino, son of a merchant of Brescia, avowedly to protect the Roman Catholic church against anti-christ. On Palm Sunday, 1693, when, in St. Peter's church at Rome, the choir sang *Quis est iste rex gloria?*—"Who is that king of glory?" Agostino Gabrino stepped forward, with his sword drawn, and cried out, *Ego sum rex gloria!*—"I am the king of glory!" Having also disturbed public worship on another occasion, he was confined in a mad-house. The order which he founded consisted of about 80 knights, mostly laborers and tradesmen, and was suppressed, by order of the inquisition, in 1697. Agostino Gabrino intended to introduce polygamy among the members of his order, and the society has been accused of having purposed a rebellion against the pope and the upper classes. The knights always wore their swords, and had on their breasts a star, ornamented with a tail, or pendant, which represented the sword seen by St. John, as related in the Apocalypse.

APOCALYPTIC NUMBER, the number 666, mentioned in Rev. xiii. 18. This number has been variously interpreted. In the church of the second century, it was generally supposed to have reference to antichrist. A more probable supposition is, that it refers to the Roman nation, the Greek letters of the word Latinus (*Λατίνος*) as numerals, amounting to exactly 666.

APOCRYPHA (Gr. *αποκρυφτα*, to conceal), hidden or unpublished (books). This term has been variously applied in different ages and phases of church history. The determination of the books of the sacred canon, or of such as were to be deemed authoritative in matters of faith and doctrine, early engaged the attention of Christians. With regard to the Old Testament, it was pretty generally admitted that the Jews had

regarded 22 books as canonical, and that these 22 were sufficiently identified both by Jewish records, and by the quotations from them in the teachings of Christ and the writings of the disciples and apostles. It would seem, however, that as strict views as are now entertained in regard to canonical books did not prevail in the early days of the church, for we find Hilary assigning as a reason for adding the books of Tobit and Judith to the Greek Bible, that the Jews had 22 canonical books because they had 22 letters in their alphabet; and therefore, because the Greeks had 24 letters, they should have 24 canonical books. With these views, added to the mistaken zeal of many, and perhaps the dishonest ambition of some, the church might very soon not only have unsettled the Hebrew canon of the Old Testament Scriptures, but found itself harassed with a multitude of productions claiming divine authority, and producing a disagreement of opinion in regard to the genuineness of their claims. For several centuries the matter passed without any specific action. The various books laying claim to inspiration were received with greater or less qualifications, by different branches or divisions of the church. So far does freedom of judgment seem to have prevailed on this point, that distinguished theologians, from the 2d to the 16th centuries, not unfrequently constructed catalogues of their own—at least of the Old Testament books. While the books were thus under discussion, and the private judgment, at least of leading men, was exercising itself upon them, it must be admitted that there was much more unanimity in the results than might have been expected. The various catalogues, of which there were scores, differed only in regard to a very few books, such as Judges, Esther, Judith, Tobit, the Book of Wisdom, Baruch, and the Maccabees. Meanwhile, a tendency is to be noticed in the history of this discussion, which is observable so far back as the 4th century, to distinguish the books into protocanonical, deuterocanonical, and apocryphal. In this sense the deuterocanonical were denominated antilegomena, while the protocanonical were called homolegomena. Thus Athanasius says, "the uncanonical books" (by which he means all not protocanonical) "are divided into antilegomena and apocrypha." The principal differences between the Roman Catholic and Protestant churches on this subject, have grown out of the fact that they have followed different versions of the Old Testament in determining their canons. In their New Testament canons they agree. The Council of Trent (1545) declared the Vulgate or Latin translation of the Old Testament to be authentic. This translation had been originally made from the Septuagint, or Greek version. This Greek version was made either as a literary addition to the Alexandrian library, or to supply a want of Alexandrian Judaism, which was endeavoring to find in the Grecian philosophy a scientific basis

for its monotheistic faith. Either of these causes, or both conspiring, may have resulted in the fact that the Alexandrian or Septuagint version contained the books now generally set aside as apocryphal by Protestants. These, therefore, the Roman Catholic church receive, and have received with considerable unanimity since at least the 7th century. The Protestants, on the other hand, receive the ancient Hebrew canon. Before the 7th century, the Hebrew canon was generally received, with the variations mentioned above; nevertheless, after the final division between the Roman and Protestant churches upon this subject, the Protestant church continued, with great uniformity, to print the apocryphal books of the Old Testament in its various editions of the Bible, inserting them generally between the Old and the New Testaments, until about 1821, when discussions arose in the British and Foreign Bible society, which resulted, in 1826, in a resolution that that society should no longer circulate the apocryphal books. Since that time, the apocryphal books are not generally printed in Protestant Bibles, either in this country or in Europe. The apocryphal books of the New Testament have never been printed, either by the Catholic or Protestant church, in connection with the Bible, a circumstance which indicates that they have always been somewhat differently regarded by both parties. An English translation of them by Hone is extant. Little is known by the masses of people, of these books, of which there are many.

APOGEE, that point of the orbit of the sun or a planet, which is most remote from the earth. In modern astronomy, the moon's apogee is almost the only one that is spoken of.

APOLLINARIANS. Apollinaris, a bishop of Laodicea, about 350, first became known as an able defender of the Nicene doctrines against Arianism. It seemed to Apollinaris that the concession to Arius that the Logos, in the nature of Christ, stood in place of the rational soul, would only strengthen the doctrines of the Nicene symbol, and afford a better stand-point from which to answer the Alexandrian heretic. He sought, therefore, to impress the following modifications on the Nicene creed:—1. That since two perfect beings cannot coalesce in one person, without the production of a monster, such as the minotaur, therefore in the nature of Christ is not found the union of perfect God with perfect man. 2. That there is no human ~~soul~~ or rational soul in Christ; the divine, or perfect God, standing in place of it. 3. That there is but one nature in Christ, and that has both a divine and human side, and the connection between them is so organic, that they may each be regarded as vested with the attributes of the other. It was by the incorporation of these views into the Nicene faith, that Apollinaris thought to justify the remaining doctrines of that faith, and so confute the Arian sentiments of the eastern church. His own sentiments, however, began very soon (363) to be

regarded with so much suspicion in the church, as to be pronounced against in the council of Alexandria, and (371) Athanasius, the champion of Nicene orthodoxy, appeared as his antagonist. Apollinaris died A. D. 390, after having formed the sect which took his name. His doctrine is one of the steps in that great movement which springs out of the discussion of the dual nature of Christ, and which next reappeared in Monophysitism, into which many of the followers of Apollinaris naturally fell, while others renounced their opinions and returned to the communion of the church.

APOLLO, one of the principal gods of Grecian mythology, called also Phoebus, and in Homer and Hesiod, generally Phoebus Apollo. He was the son of Zeus and Leto (Jupiter and Latona), and twin-brother of Artemis (Diana). Homer and Hesiod give no details about his birth; but later writers relate that Hera (Juno) had put under ban all lands which should harbor Leto, who was then pregnant. Delos was an uninhabited rock in the *Ægean*, just risen above the surface of the sea. Thither Leto took refuge, and after 9 days' labor, brought forth Apollo and his sister. In gratitude for the shelter afforded, Leto promised that her son should honor that island above all places; and it was always the principal seat of his worship. Homer represents Apollo as an archer who inflicts vengeance with his arrows; as a god of song and stringed instruments, in which character he is said to have invented the phorminx; as a revealer of the future, a function which he exercised especially at the temple of Delphi; and as a god of flocks, in which capacity he kept the herds of King Admetus. In the latter poets, he is the same as the god Helios, or the Sun, but in the earlier poets Phoebus Apollo and Helios are quite distinct. With the advent of the lyrical poets, Apollo becomes a patron of the healing art. In this aspect, he is the father of *Æsculapius*. He was the president and protector of the Muses; he is usually represented in the prime of youth and manly beauty, with long hair, his brows bound with the sacred bay-tree, and bearing the lyre or the bow. The most celebrated places where Apollo was worshipped were *Abæ* in Phocia, *Ismenion* near Thebes, *Delos*, *Tenedos*, *Patara* in Cilicia, and *Claros* near Colophon. The hawk, the raven, the swan, and the grasshopper, were his favorite animals. Apollo was the peculiar god of the Dorians. He had musical contests with *Marsyas* and *Pan*. He is the type of youthful beauty. According to Herodotus, the Egyptian synonym of Phoebus Apollo is *Horus*. The Romans received him from the Greeks. The first time that we hear of his worship at Rome was in 480 B. C., when a temple was raised to him for the purpose of averting a plague. A second temple was built to him in 350. During the 2d Punic war, in 212, the *Judi Apollinaria* were established at Rome. After the battle of *Actium*, Augustus, the victor, raised a temple in his honor at *Actium*, and another on the *Palat-*

line mount. Every centenary anniversary of the *ludi*, they celebrated in his honor the *ludi saculares*. Horace wrote the *carmen saculare* on an occasion of this sort.

APOLLO BELVEDERE, a celebrated statue of Apollo found at Capo d'Anso, formerly Antium, the birthplace of Nero, about the end of the 15th century. This emperor pillaged many of the Grecian temples, especially that of Delphi, of their statues, and in this way, it is thought, this admirable work of antiquity found its way into this little hamlet. The sculptor is unknown. It received the name of Belvedere, from its being placed in the Belvedere court of the Vatican. It was purchased by Pope Julius II., before his elevation to the pontificate. It made part of Bonaparte's trophies in Italy, but was restored to Rome from Paris in 1815.

APOLLODORUS, a name common to a great number of Greeks who have barely succeeded in escaping from oblivion. I. Of Amphipolia, one of the generals of Alexander the Great, who was intrusted, 331 B. C., in conjunction with Menes, with the administration of Babylon, and all the satrapies as far as Cilicia. II. A grammarian of Athens, son of Asclepiades, and pupil of Aristarchus and Panætius; flourished 140 B. C. Of his voluminous writings, but 8 books of his *Bibliotheca*, a mythological work, have come down to us. He wrote a chronicle, in iambic verse, of events extending from the destruction of Troy to his own times. The best editions of his remains are those of Heyne, Göttingen, 1808, and of Clavier, Paris, 1805, with a French translation. III. Of Carytus, 300-260, a comic poet of the new Attic comedy. Terence took the plot of several of his plays from the Carystian. IV. Tyrant of Cassandrea (formerly Potidæa), in the peninsula of Pallene, ancient Macedonia. By promising a number of slaves their liberty, he gained his position, 379 B. C., and surrounded himself by a body-guard of barbarian Gauls, who had but lately ravaged the country. Antigonus Gonatas, restored king of Macedon, flayed him alive, burnt his two daughters beneath his eyes, and then threw him, all raw and stripped of his skin, into a cauldron of boiling water, where we will leave him. V. Of Gela in Sicily, a comic poet, 340-290. VI. Of Pergamus, a rhetorician, taught rhetoric at Apollonia, and had as pupil the young Octavius, afterward Augustus Cæsar. VII. A painter of Athens, B. C. 408. He made great improvements in his art, especially in coloring, and invented chiaroscuro. VIII. An architect of Damascus. IX. Of Phalerium, a friend of Socrates, who was present at his death. X. Of Lemnos, a writer on agriculture in the 5th century B. C.

APOLLONIA, a city of Illyricum, near the mouth of the river Aous, now the Vojussa. It was founded by colonists from Corinth and Corcyra. Strabo says its laws were wise, but more Spartan than Corinthian. According to Ælian foreigners were in disfavor. None could hold offices except the chief families and the

descendants of the first colonists. The place suffered much from the attacks of the Illyrians, and its inhabitants, therefore, perhaps, sought more readily the protection of the Romans when they came upon the scene, remaining faithful to them also during the Macedonian war, at which time their city was of much importance from being opposite to the Italian ports of Hydruntum and Brundisium, the latter of which can, on a bright day, be seen from Apollonia. It is at this place that Pyrrhus is said to have entertained the idea of building a bridge across the sea. The distance is about 50 miles. The ancient name may still be traced in the modern Pollina. A few huts, a monastery, and a church, together with some ruinous remains of 2 temples, and fragments of ancient inscriptions, are, however, the only vestiges of the once polished city.

APOLLONIUS PERGÆUS, an ancient geometer, born at Perga in Pamphylia, about 250 B. C., and the brightest ornament of the reign of Ptolemy Philopater. His work upon the conic sections gained for him, from his contemporaries, the title of "The Geometer." Only 4 books of this work have come down to us in the original language. Three more are preserved in Arabic, and the 8th is lost. Dr. Halley, guided by the description of Pappus, added the 8th book in his edition published at Oxford, in 1710. Other treatises of Apollonius are described by Pappus; but in these books on the conic sections he almost anticipates the mathematicians of the 18th century.

APOLLONIUS RHODIUS, a Greek poet, born in Egypt, probably at Alexandria. He was surnamed Rhodius because the people of Rhodes received and adopted him after he had been rejected by the Alexandrians. He was educated by Callimachus, though at a later period they became rivals and enemies, from diversity of tastes, and ambition. Apollonius was an ardent admirer of the Homeric poems, and aspired to imitate them in an epic on the expedition of the Argonauts. This poem did not at first meet with the success which he had anticipated. When read to the Alexandrians, they condemned it, and the poet, in a fit of indignation and despair, departed from among them and sailed to Rhodes. After spending some time in that city he ventured to read a new version of his epic to the Rhodians, who received him well and highly applauded it. Thus encouraged he prepared and delivered a course of lectures on rhetoric, which so delighted his hearers that they immediately conferred on him the privileges of a citizen. Soon after this he took leave of the hospitable Rhodians, and returned to Alexandria, where, at a second reading, his poem was received with such enthusiastic applause as amply compensated him for the first condemnation of it.

APOLLONIUS TYANÆUS, a celebrated Pythagorean philosopher, born at Tyana, a city of Cappadocia, whence he received his surname, about the commencement of the Christian era.

He early manifested a strong predilection for the Pythagorean philosophy, conforming in all things to the severe discipline and rigid asceticism which the Samian sage had prescribed for his followers. After observing the term of mystic silence, during which alone, according to Pythagoras, the secrets of matter and mind are revealed to mortals, Apollonius travelled through Asia Minor, disputing everywhere concerning the mysteries of nature and religion. These peregrinations and controversies occupied many years of his life, for his biographer says he was nearly 50 years old when he conceived the idea of proceeding to the East and conversing with the wise men of Babylon and India. The magi of Babylon disclosed to him several secrets of the healing art, which he subsequently turned to excellent account. From Babylon he journeyed to India, where he disputed with the Bramins on the comparative merits of the Alexandrine and Oriental philosophers, and laid up fresh stores of knowledge. On returning from the East he again visited the Greek cities of Asia. Here he is said to have first established his claim to supernatural power—probably by performing some extraordinary cures—and to have received from priests and people divine honors. He next passed over to Greece, where he went from city to city, visiting temples and oracles, and discoursing on sacred things with the authority of a god-commissioned teacher. But when he arrived at Athens and sought admission to the Eleusinian mysteries, he was denied that honor, because they regarded him as a magician. Nor could he, save by force, obtain an entrance into the cave of Trophonius, where he is said to have found those precious relics, the theological books of Pythagoras. From Greece he proceeded to Rome, but hardly had he reached the imperial city when he was arrested and brought to trial as a practitioner of the black art. The fears or the favor of his judges, however, procured his acquittal, and, on regaining his liberty, he set out once more on his travels. After visiting Spain, Africa, and Greece a second time, he bent his course to Alexandria. Vespasian was then in Egypt preparing to strike a blow for the empire, and hearing of Apollonius's arrival, he determined to turn to account the vast influence which the philosopher possessed with the people as a prophet and thaumaturgist. Accordingly when Vespasian, on his entrance into the city, was met by the magistrates and philosophers, he immediately inquired, with affected anxiety, whether the Tyanean was present. Being answered in the negative, he at once proceeded whither he was, and entreated Apollonius to make him emperor; the Pythagorean rejoined, "that he had already done it in praying to the gods for a just and venerable sovereign." Vespasian, on receiving this proof of the sage's friendly disposition, assured him that from that moment he resigned himself in all things to his guidance, which mark of confidence and respect so pleased Apol-

lonius, that, at a council of philosophers presently held in Alexandria to consider the claims of Vespasian, he warmly advocated the cause of his new patron. In consideration of his services on this occasion, he was honored with the friendship of Vespasian and his son Titus; but having, after the death of the latter emperor, attempted to excite the Greek cities of Asia against the tyrant Domitian, he was brought to Rome, and cast into prison loaded with chains. His biographer, Philostratus, says that he freed himself from captivity and the hands of his enemies by the exercise of his supernatural powers; Apollonius himself, at a subsequent period, publicly stated in Greece, that he owed his liberty to the clemency of the emperor. Several cities contended for the honor of having been the last residence of Apollonius, but it seems most probable that his old age was spent at Ephesus. Tyana, the place of his birth, was raised to the rank of a sacred city, and invested with peculiar privileges, and here, during the supremacy of Paganism, a temple existed in which the Pythagorean was worshipped as a god. In his manner of living and dress, as well as in his doctrines, Apollonius, as we have already observed, was from early youth a rigid ascetic. He used no animal food, wore no woollen garment, suffered his hair to grow, and abjured the society of women. As a philosopher he labored to reconcile the Oriental and Greek systems with the symbolism of his master. As a religious reformer he sought to restore the rites of Paganism to their pristine purity, and to sustain its tottering edifice against the assaults of Christianity. He held that all sensible objects were material and corruptible; that all sacrifice was impure in the sight of the gods; and that even prayer itself became polluted when it passed the lips of the suppliant.—We are indebted to Philostratus for some of the letters of Apollonius, and his reply against a complaint of the philosopher Euphrates. The letters are remarkable for their authoritative tone and laconic brevity. All his other works have perished.

APOLLOS, an Alexandrian Jew, "an eloquent man, one mighty in the Scriptures, and instructed in the way of the Lord." He was converted to Christianity about 54 A. D. He began (Acts xviii. 25) to preach at Ephesus, "knowing only the baptism of John," and was afterward instructed by Aquila and Priscilla, and thus qualified sent into Achaia. At Corinth he was very popular, dividing fame with Paul and Peter, as it appears from that apostle's reference in 1 Cor. i. 12: "Every one of you saith, I am of Paul, and I of Apollos, and I of Cephas." Apollos was ordained bishop of Corinth. The division between him and Cephas grew to such a result that the Church of Rome interfered A. D. 95. St. Clement addressed them a friendly epistle, which is probably the earliest uninspired writing (of the church) which has come down to us.

APOLOGETIC FATHERS, a term applied

to several early Christian writers, who wrote apologies for the Christian religion, addressed to Pagans or Jews. These apologies are divided into two classes. The first includes those addressed to the Roman emperor or senate, as reclamations against the judicial punishment of Christians simply as Christians. The second includes those written in defence of the Christian religion against Paganism or Judaism. Of the former class of apologies, the first known to history are those of Quadratus and Aristides, which were presented to Adrian during his stay at Athens, and had the effect of moderating the persecution. These are lost. The next in order are the 2 apologies of Justin Martyr, the first addressed to Antoninus Pius, the second to the Roman senate, on account of which the author was put to death. The greatest number of these apologies appeared during the reign of Marcus Aurelius. Their authors were Melito, bishop of Sardis, Miltiades, a Christian philosopher of Asia Minor, Clandius Apollinarius, bishop of Hierapolis, and Athenagoras, an Athenian philosopher. All are lost except the last. The last and ablest of these apologies is the *Liber Apologeticus* of Tertullian, addressed to the Roman senate. The method of defence is nearly identical in all the extant apologies, and consists in a refutation of the false accusations which were made the ground of judicial and popular persecution. These charges were, that Christianity was an illegal institution, destitute of political sanction, and therefore possessing no legitimate status in the Roman empire; that it was suspicious, on account of the mystery in which it was veiled; dangerous, on account of the great number from the lower classes professing it; and anti-social, on account of its want of sympathy with political and public affairs. In addition to this, it was regarded as an atheistical system, because it condemned the worship of the gods, and apparently had no visible and external cultus of its own, but in place of it, certain stupid, obscene, and criminal orgies, practised in secret nocturnal assemblies, and denominated mysteries. In refuting these charges, the Christian apologists labored under this serious embarrassment, that Christianity was obliged to discard the pagan civilization as essentially irreconcilable with itself, and to labor to supplant it by laying the foundation of another civilization in the heart of the Roman commonwealth. The pagan community detected by an unerring instinct the element destructive to itself in Christianity, and hence commenced an internecine war for its own preservation. The Christian apologists could neither boldly avow that was really the case, nor could they either avow or prove the contrary. They were obliged to content themselves then with proving that they acknowledged and worshipped a supreme Deity, and were therefore no atheists; that they professed and practised a pure morality, and religious ceremonies which were rational, decorous, and innocent,

and were therefore not guilty of the stupid and impure superstitions imputed to them; that they inculcated and practised the strict fulfilment of civil and social duties, and were therefore not dangerous; and that they were loyal to the emperor, though they refused to worship him as a divinity, and were therefore not guilty of treason against the state. There was accordingly no ground that they should be punished simply as Christians, since the profession of Christianity implied no political or social crime, and they demanded therefore that they should not be liable to judicial trial and condemnation, unless some specific offence against the laws were alleged against them. The second class of apologists took up the question between Christianity and Paganism, or Judaism, in a more scientific and theological manner, and entered deeply into the question of the credibility, reasonableness, and moral tendency of the respective systems. The chief of these apologetic writers are Justin, Tertullian, Origen, Clement of Alexandria, Cyril of Alexandria, Tatian, Eusebius, and Arnobius. Passing over the mere side-issue with the Jews, as devoid of interest in modern times, the line of argument against the Pagans was twofold. First, they endeavored to destroy the historical and rational basis of Polytheism, and to demonstrate that it was fabulous in its origin, absurd and untenable in its philosophy, and immoral in its influence on society. After this, they labored to demonstrate the system of Monotheism on rational grounds, and from that to prove the divine mission of Jesus Christ, the authority, reasonableness, and moral excellence of the religion instituted by him, and of its doctrines in detail. After the decline of the Roman empire, Christianity was accused by pagan writers as the cause of its downfall, and the advocates of the Christian religion were obliged to defend it against this charge, by pointing out political and moral causes, springing out of Paganism, which had produced the interior decay and consequent dissolution of the great Roman commonwealth.

APOLOGUE, an ingenious method of conveying a moral by means of a fiction. The difference between a parable and an apologue is that the former is drawn from what passes among mankind, whereas the scene and *dramatis personæ* of the latter lie among brute beasts or even among things inanimate. Thus, the story of the fox and the crow which let fall the piece of cheese, and the sun and the wind which strove to make the traveller take off his cloak, are apologues as distinguished from parables.

AOPHTHEGM, a short, terse sentence, uttering some dictum of worldly good sense or moral truth. Such are the sententious precepts of Plutarch, and the economical maxims of Poor Richard.

APOPLEXY (Gr. *απopleξια*, a sudden blow, instant deprivation of power and motion). This term is applied to a sudden loss of conscious-

ness, feeling, and voluntary motion, arising from a suspension of the functions of the brain. The respiration and the circulation are also more or less affected as well as the action of the brain.—Apoplexy is sometimes preceded by premonitory symptoms, such as drowsiness, lethargy, vertigo, headache, ringing in the ears, dimness of vision, or apparent floating specks before the eyes, loss of memory, a sense of fulness in the head, or slight attacks of bleeding at the nose. Mr. Rochoux observes, however, that of 68 cases which came under his observation, only 9 had distinct premonitory symptoms.—The suspension of the cerebral functions causing apoplexy, may be connected with various pathological conditions, each of which gives name to a particular variety of the disease. 1. Congestive apoplexy is characterized by great congestion of the brain, in which the vessels are gorged, but without extravasation of blood or serum. 2. Meningeal apoplexy, so called by Serres, is characterized by congestion of the vessels of the brain, with extravasation on its surface. 3. Hemorrhage from the vessels in the substance of the brain with lesion of its structure. 4. Serous effusion on the external surface and within the ventricles of the brain, constituting what is generally defined as serous apoplexy; this, however, is more frequently the result of an inflammatory congestion of the brain, than of sudden derangement causing an attack of apoplexy. 5. Simple apoplexy, in which no trace of organic lesion or congestion can be found in the body, and which was therefore termed in former times, convulsive, nervous, or hysteric apoplexy.—Apoplexy is said to be hereditary, and to occur chiefly in persons of short, thickset stature, and of full habits of body. Rochoux states that in his 68 cases, 10 only were large, fat, and plethoric; 23 being of a thin, meagre habit; and 30 of an ordinary habit of body.—Apoplexy is more frequent in males than in females. It may occur at any period of life; it is, however, very rare in childhood and in youth, but common between 36 and 70; most common above 50. Post-mortem examinations, after death from apoplexy, show aneurism or ossification of the arteries of the brain; thickening, induration, obstruction or obliteration of the canals of the sinuses; diseases of the heart, especially hypertrophy of the left ventricle; diseases of the kidney; and particularly granular degeneration as described by Bright. Amongst the predisposing causes of apoplexy are torpor of the liver, diseases of the lungs and air-vessels, especially bronchial and asthmatic affections, which bring on violent fits of coughing; suppressed hemorrhage, such as hemorrhoids and bleeding of the nose; suppression of the menstrual discharge; long-continued depression and anxiety of mind; excessive use of wine and malt liquors; over eating and the habit of sleeping after a full meal; excessive venery and every kind of habitual sensual indulgence carried to excess.—In the severe forms of attack, the patient is struck down suddenly,

sometimes froths at the mouth, has a livid countenance, dilated pupils, complete relaxation and immobility of the voluntary muscles, with unconscious evacuation of the urine and the feces; and dies very shortly after the attack, with or without stertor, but with cold, livid extremities, and sometimes a cadaverous countenance. This constitutes the *apoplexis foudroyante* of the French, and is generally caused by an immense extravasation of blood upon the brain. Although apoplexy seldom proves instantaneously fatal, it may cause death in much less than an hour. In some cases, patients remain for months in a comatose paralytic state, after the attack. The treatment of apoplexy depends upon the nature of the cause and the actual state of the patient. If there be a flushed countenance, a dull or suffused eye, with hot skin, and a strong, full pulse, it may be necessary to bleed immediately in order to save life; but where the countenance is pallid and sunk, the pulse full but weak, and the skin cool, the extraction of blood might exhaust the vital energies of the brain, already overwhelmingly depressed, and stimulating remedies are indicated rather than depletion of the system. A person seized with apoplexy should be carried into a large room, allowing free circulation of fresh air around the body; which should be placed in the horizontal position, with the head and shoulders considerably raised; all bandages should be removed from the head and neck, the clothes made loose on the body, and a physician called in immediately. Cold wet cloths may be applied to the head, and mustard poultices to the feet; the chest and the abdomen may be briskly rubbed; but no time should be lost in sending for medical assistance.

APOSTOLI, FERRANTE, an Italian priest, was born in Cremona, at the close of the last century. He founded the first infant asylums in Italy, and established the principles and rules on which those institutions are organized and directed. He established in Piedmont, under the direction of that government, the first normal schools for teachers, and, until recently, has held the office of president of the university of Turin.

APOSTASY (Gr. ἀπο, *apo*, to go away), is a term used both in an ecclesiastical and a religious sense. Ecclesiastically, it signifies a departure from any voluntarily assumed church vows, such as the vows of monastic or clerical life. Religiously, it signifies a departure from the Christian faith to some other religious belief, and a separation from church fellowship. Originally, the crime of apostasy, as described in the New Testament, was a renunciation of Christianity for Judaism, a form of defection from which the apostolic churches suffered much. Both ecclesiastical and religious apostasy have been punished with various degrees of rigor, by the various churches—and by the same church at various times. The first Christian emperors punished religious heresy by severe civil disabilities, such as depriving them

of power to give testimony and entail property. Later, it was made capital for an apostate to pervert the faith of others. In countries where the state does not confer on the church power to lay civil penalties, apostasy is punished simply with excommunication, in the case of a layman, and with excommunication and depriving of orders, in the case of an ordained minister. Apostasy is to be broadly distinguished from heresy. A person is a heretic who embraces or promulgates doctrines which, in their isolated form, though they may be contrary to the expressed faith of the church on a particular point, yet do not so far invalidate the whole Christian scheme as a logical consequence, that he cannot be regarded as honestly retaining any faith in Christianity; while an apostate is one who holds doctrines so fundamentally at variance with the tenor of Christianity, that he is supposed consciously to deny the whole scheme. The church has generally observed this distinction, with more or less clearness, in her treatment of heretics as distinguished from apostates. As late as the time of William III., statutes were passed in England for the civil punishment of apostates. Charles V. of Germany abolished civil penalties for heresy; and since apostasy had, in the German code, been somewhat confounded with heresy, punishment for apostasy, from that time, was disused.

APOSTLES (Gr. *αποστολοι*, the sent, messengers), a title bestowed in the New Testament upon all who were commissioned to preach the gospel of Christ, but especially upon the 12 (representing the 12 tribes of Israel) whom Jesus chose from the whole number of his disciples to be his heralds among Jews and Gentiles. Their names were—Simon Peter, Andrew, James (son of Zebedee), John, Philip, Bartholomew, Thomas, Matthew (Levi), James (son of Alphaeus), Lebbeus (Thaddæus), Simon, and Judas Iscariot. They were mostly Galileans and laboring people, all being fishermen but Matthew, who was a tax-gatherer. They were without education, and destitute of culture. Some of them seem to have been connections of Jesus, or companions of his youth, and they had been disciples of John the Baptist before Christ's appearance. These men Jesus kept about him, imparting to them no secret doctrines, but making them familiar with his purposes, and quickening them with his spirit. They accompanied him on his journeys, witnessed his works, heard his public teaching and discussions, and the more intimate of them (Peter, James, and John) were often admitted to the privacy of his meditations. During his lifetime, the apostles undertook one missionary expedition at their Master's bidding; but they were very slow in understanding his thoughts, and at the time of his death had but a faint apprehension of the deepest truths which he taught. After the resurrection, the 11 remained in Jerusalem, not openly distinguished from other Jews. The place of Judas was filled by Matthias. It was

not until the day of Pentecost, that their work commenced in earnest with the public announcement of Christ as the Messiah. The persecution to which Stephen fell a victim, scattered the believers (some think only those of Greek extraction); but the apostles still continued in the city, or in Judea, Peter alone venturing reluctantly to make a short journey as far as Cesarea, where he baptized some uncircumcised people.—The work assigned by Christ of preaching the gospel to "all the world,"—left unattempted by the original apostles, who wished to confine its blessings to the circumcised Jews,—was first fully undertaken by Paul, a man who had never seen Jesus on earth, had received no commission from him like the rest, had sought from Peter and his companions no authoritative exposition of the Master's truth, and was by them at first an object of suspicion. They remained apostles to the Jews. He felt himself called to be an apostle to the Gentiles; and to him Christendom owes a deeper insight into Christ's ideas, and a wider diffusion of his truth. All that we know from historical records respecting the apostles, is gathered from the letters of Paul and the book of "Acts," though legends about all of them were early current, recounting their voyages, sufferings, and martyrdoms. An interesting account of the apostles' labors is found in Neander's "Planting and Training of the Christian Church." Schwegler's *Nachapostolische Zeitalter* should also be consulted.

APOSTLES' CREED, the oldest, most comprehensive, and most universally accepted creed of Christendom, interesting from its antiquity, and still more from its general adoption by the Greek, Roman, and Protestant churches. It reads as follows: "I believe in God the Father Almighty (maker of heaven and earth): and in Jesus Christ his only Son our Lord: who was conceived by the Holy Ghost, born of the Virgin Mary: suffered under Pontius Pilate; was crucified, (dead,) and buried; (he descended into hell.) The third day he rose again from the dead. He ascended into heaven, and sitteth at the right hand of (God) the Father (Almighty). From thence he shall come to judge the quick and the dead. I believe in the Holy Ghost: the holy (catholic) church: (the communion of saints:) the forgiveness of sins: the resurrection of the body: (and the life everlasting.) Amen."—The passages in parentheses are additions to the original form, which was complete by the middle of the 2d century. The nucleus of the creed is supposed to have been the formula of baptism, "In the name of the Father, and of the Son, and of the Holy Ghost," to which the other articles were appended, the whole forming a brief summary of historical statements from the New Testament, in regard to the Father, Son, and Spirit. The Creed is rather an epitome of recorded facts, than a system of speculative opinions, and was never designed nor used to express the philosophical thoughts of the church. The impression that this ven-

erable symbol was regarded as a secret formula, part of the *Disciplina Arcani*, is erroneous. The tradition that it was made by the apostles themselves, who came together before their departure from Jerusalem, and contributed each an article toward an authentic, compendious, and unchangeable rule of faith, rests upon no historical evidence.

APOSTLES' ISLANDS, a small group of islands, 12 in number—hence their name—in the straits of Magellan, where they join the Pacific ocean, in lat. 52° 34' S. long. 75° 6' W.

APOSTOLIC, **APOSTOLICAL**, whatever is derived from the institution of the apostles, or reproduces their peculiar spirit.—**APOSTOLICAL CANON AND CONSTITUTIONS**, ancient collections, incorrectly attributed to the apostles, supposed to contain many regulations actually made by apostles, and handed down to the time of the compiler by oral tradition.—**APOSTOLIC CHURCH**, a title applied by Catholics, Greek and Oriental Christians, Anglicans, etc., to the Christian church, on account of the note of apostolicity, or apostolic foundation, doctrine, and order; also in a general way by all Christians.—**APOSTOLIC KING**, a title granted by the holy see to the kings of Hungary, on account of the extensive propagation of Christianity by the founder of the royal line, St. Stephen.—**THE APOSTOLIC SEE**, the Roman church, so called, because, according to the doctrine of the Catholic church, the bishop of Rome succeeds to St. Peter, as prince of the apostles, and as the only apostle who has had successors in the apostolic office. Sees founded and governed by apostles were also called apostolic.—**APOSTOLIC SUCCESSION** usually denotes the succession of bishops by episcopal consecration from the apostles, but is also used by some Protestant divines, to denote a transmission of the ministry by Presbyterian ordination. The fact of the succession is maintained by the Catholic and all the oriental churches, but the phrase is more frequently used by High-church Anglican divines, who have written many learned and elaborate works on the divine initiation and succession of bishops.

APOSTOLIC FATHERS, the disciples of the apostles; more precisely, those disciples of apostles who are supposed to have left writings. They are—Barnabas, to whom was ascribed an epistle; Clement of Rome, the reputed author of an epistle to the Corinthians, also of the Clementine Homilies and Constitutions; Hermas, whose name is connected with the "Shepherd" without good cause; Ignatius, bishop of Antioch in Lysia, to whose authorship several epistles have been imputed; Polycarp, "the disciple of John the apostle, by him ordained bishop of Smyrna," according to St. Jerome, who was credited with the authorship of an epistle to the Philippians; and Papias, whom Irenæus speaks of as a hearer of John and a companion of Polycarp, to whom it has been customary to attribute 5 books, called "An Ex-

plication of the Words of the Lord." Among these we should reckon also Dionysius the Areopagite, marked by tradition as the person whom Paul converted at Athens.—Most of the writings bearing the name of the apostolic fathers, are regarded as spurious by various modern critics. The genuineness of all has been disputed; but the fragments that remain are curious as relics of an early age, and valuable as indicating the character of primitive Christianity.

APOSTOLICI. Three religious sects of this name have flourished from time to time, though only one of them is of any special note. I. A sect which originated in the 3d century, concerning which very little is known. They had all things in common. II. A sect which sprung up in the 12th century. Historians record that their conduct was exemplary, though they were mostly from the lower classes of society. They would not take an oath, nor shave, nor cut their hair, nor marry. III. About 1260, Gerardo Sagarelli of Parma, an impetuous young man, who had been rejected from the Franciscan order, instituted the third sect known by this name. They believed that the kingdom of heaven was soon to come, and went barefoot through Italy, Switzerland, and France, preaching, begging, and singing. They rejected marriage, but lived in intimacy with females, whom they called spiritual sisters, and who accompanied their journeys. Honorius IV. abolished the sect (1266), and burnt Sagarelli (1300) as a heretic. Dolcino, a Milanese, took the lead of the sect, which flourished for a short time, but under the vigorous opposition of the church soon became reduced, by the necessity of subsistence, to mere banditti, and (1307) the whole movement ceased. The ruling idea of each of the successive appearances has been, the re-inauguration of the simplicity and poverty of the apostolic mode of life. It was, therefore, always attended with bitter lamentations and denunciations of the power of wealth in the church. They are all of them, doctrinally, the outcropping of that theological development which is seen more broadly marked in the Encratites, Catharists, and Manichæans, though they held, consciously, few of the sentiments entertained by these more important sects.

APOSTOOL, SAMUEL, an Anabaptist preacher of Holland, born in 1638, died near the close of the 18th century. In 1662 he was chosen one of the ministers of an Anabaptist congregation at Amsterdam, and his teachings came immediately into collision with those of his colleague Galenus, the latter maintaining that the Christian religion was not so much a body of dogmas which commands faith, as a moral code which requires obedience. The discussion became violent, and ended in the formation of two sects, the Galenists and the Apostoolians. The latter sect had the more vigor and enthusiasm, and impeached Galenus before the states-general for Socinianism. He gained both glory and acquittal, and the Galenists becoming in turn prepor-

derant, the disciples of Apostool were obliged to celebrate their service in a brewery distinguished by the sign of a painted sun, and hence were called the "Mennonites of the Sun." Subsequently, the two sects were united under the name of Mennonites.

APOSTROPHE, a figure of speech in rhetoric, whereby an absent or dead person is addressed as if he were present.—In grammar, the contraction of a word by the use of a comma, as *echo'd* for *echoed*, *tho'* for *though*.

APOTHECARY (Lat. *apothecarius*, Gr. *αποθηκη*, shop, or store). Apothecaries formerly sold herbs and drugs and spices, and by long practice in the art of preparing tinctures, syrups, powders, extracts, pills, and medicated waters, they became a special corporation, distinct from grocers, and, in some places, from druggists, and were organized into a privileged body in the civilized parts of Europe, during the middle ages. In England, the corporation still exists, in virtue of a royal charter, and with power to confer licenses on its members; who are invested with the right to administer medicine, as well as to prepare it and sell it openly in shops. A large proportion of the medical practitioners in England are only apothecaries; but the corporation, wishing to keep pace with the progress of science, enlarges its curriculum of studies and examinations as occasion may require. The royal college of surgeons in London also has a charter, and a right to give diplomas, but this is honorary, and confers no legal right to practise medicine, and to sue for payment. Most young apothecaries, however, now obtain it, before they venture to practise as surgeons. In France, the old corporation of apothecary druggists has been dissolved, and a new chartered corporation of *pharmaciens* has been substituted in its place. These keep shops, prepare medicines, and make up prescriptions, but have no legal right to practise as physicians. In this country, the business is followed without restriction.—**APOTHECARIES' WEIGHT**, used in dispensing medicines, and by which the pound (lb) is divided into 12 ounces ($\frac{1}{2}$), the ounce into 8 drams ($\frac{1}{4}$), the dram into 8 scruples ($\frac{1}{8}$), and the scruple into 20 grains (grs.). In the wholesale trade in medicines, avoirdupois weight is used.

APOTHEOSIS (Gr. *αποθεωσις*, to deify), the act by which a mortal is raised to the rank, and placed among the number, of the gods. In the origin of society, the people, seized with admiration and gratitude for their legislators, looked upon them as something more than human, and imagined that these great men did not die, but went to unite themselves to the Deity, and that from above the skies they watched still over the interests of earth. Hence they addressed prayers to them, offered them sacrifices, and built to them temples. This worship was often rather increased than diminished by the progress of intelligence. Philosophers became in some sort the apostles of it, as they taught that man encloses within himself something immaterial, an emanation from the Supreme

Being, which is appointed to return to its divine origin, but must first purify itself from the stains contracted by its union with matter. The good man became after his death first a hero and then a god, his immortal part being reunited to the Deity. It was one of the dogmas taught by Pythagoras, who had derived it from the East, that virtuous men after death take their place among the gods. The lively imagination of the Greeks received eagerly a doctrine which so flattered their hopes and affections, and deified at first only sages, but soon also the authors of useful inventions and those who had rendered eminent services to the state. In process of time it became common among this superstitious and passionate people for lovers to raise altars to their mistresses, and parents to their children. Alexander the Great claimed, even while living, not only a divine parentage, but a divine nature, and sent an order to all the republics of Greece to recognize his divinity. The decree returned by the Laedemonians in answer is remarkable: "Since Alexander desires to be a god, let him be one!" The various dynasties which were made from the fragments of his empire often paid to their princes the compliment of an apotheosis, and on some of the coins of the Seleucid prince Antiochus is found inscribed the word "God" (*Θεος*), which he had taken for a surname. The senators of Rome raised Romulus to the rank of the gods, but there was no second example of a Roman apotheosis till that of Julius Cæsar. Flattery then got possession of this religious rite. Augustus had altars raised to his own worship during his lifetime among the Gauls and in other provinces, and most of the succeeding emperors went, after death, to swell the number of the divinities. Each of them, upon his accession to the empire, sent his predecessor, according to a decree of the senate, to sit upon the divine Mount Olympus, and gave his bust to adorn the capitol; thus acquitting himself of a debt which his successor in turn was to pay to him. Vespasian, always a railer, even in his last moments, announced the approach of death to those who surrounded him, by saying, "It seems to me that I am becoming a god." Eusebius, Chrysostom, and Tertullian, mention that Tiberius proposed to the Roman senate the apotheosis of Jesus Christ. In one of the satires of Juvenal, Atlas complains that the frequent apotheoses have filled the heavens with gods, so that he bends and staggers under their weight. Only the later emperors were while living worshipped at Rome; some of them not only built temples to themselves, but even served as priests before their own idols. Caligula, not satisfied merely with divine honors, wished to be all the gods in turn; and sometimes with thunderbolt in hand and a long beard upon his chin, he made himself adored as Jupiter; sometimes, perfumed with essences and clothed with feminine robes, he chose to be esteemed the goddess of Cythera. The follies to which this custom led need not all be

detailed. Nero raised his monkey to the rank of the gods, and Hadrian apotheosized his favorite, the beautiful boy Antinous. Good princes deified monsters whom they would have blushed to imitate, and Marcus Aurelius, the philosopher on a throne, placed among the number of goddesses that Faustina whose vices had publicly dishonored him. Even Christian emperors allowed divine honors to be decreed to them by the Pagans whom they persecuted. Constantine had the double advantage of being enrolled among the gods by the religion which he had de-throned, and among the saints by that which he had made to triumph. His successors were deified only by their Pagan subjects, and with Paganism this custom came to an end. The ceremonies of the apotheosis, as related by Herodian and Dion Cassius, were very curious. At the entrance of the palace, upon a magnificent carpet, a waxen image of the emperor, with pallid and sickly countenance, is extended on a lofty ivory couch spread with cloth of gold. The body had already been burned before the ceremony. The senate sit on the left side of the bed clothed in black, and on the right noble women, dressed as mourners in plain white garments, and wearing no gold nor necklaces. The physicians come in and look upon the sick man from time to time, saying only that he grows worse and worse, and at the end of 7 days they announce that he is dead. Then the young Roman knights and chosen youths of the equestrian order take up this couch of state, and bear it along the Via Sacra to the old forum. It is there placed as if between two amphitheatres, and on either side a chorus of noble men and women chant, in mournful strains, hymns in praise of the deceased. The couch is carried thence through the city to the Campus Martius, in the midst of which is constructed a square pile filled with combustibles and adorned on the outside with hangings interwoven with gold, and with various pictures and images. Upon this edifice others are placed resembling it in form and decoration, but of smaller size, and diminishing successively in magnitude toward the top. The couch is placed in the second story, and around it is collected every kind of aromatic and incense, of fragrant herb and fruit and juice, for all nations and cities vied with each other in bestowing these last gifts in honor of the emperor. After this there is a procession of horsemen and chariots around the pile, with the drivers costumed to represent the greatest Roman generals and the most illustrious ancestors of the deceased. This ceremony being completed, the new emperor approaches the catafalque with torch in hand, and at the same moment the pile is lighted on every side; and an eagle, or, if the apotheosis be of a woman, a peacock is let loose from the highest story, and, rising in the air with the flame, bears to the skies the soul of the emperor. The deceased then receives the title of *deus* and the name of some divinity; thus Messalina was called

Juno; and Drusilla, Venus. Colleges of priests and priestesses, sacrifices, and games, are instituted in his honor. Magnificent columns and shields are consecrated to him; and there are erected to him columns of gold or silver, sometimes colossal, crowned with stars or rays, the symbols of divinity. These are placed by the side of the statues of the gods in the temples and public places, and to destroy or sell them, or even to chastise a slave or change one's garments before them was a capital offence.

APO-ULMENE, or APO-GHULMEN, the native name of the chieftains of the second rank among the Araucanian Indians.

APPALACHEE BAY, a large open bay on the S. coast of Florida in the gulf of Mexico, having a breadth of about 90 miles, and an extent inland of 50 miles. There is a passage through the bay 10 feet deep, by which the town of St. Marks is reached, which furnishes the best anchorage ground along the coast for the distance of 280 miles.

APPALACHIAN MOUNTAINS. These are the great range of mountains, called also the Alleghanies, which extend from that part of Canada lying between the New England states and the St. Lawrence river, through the whole length of Vermont—across the western part of Massachusetts and the middle Atlantic states, to the northern part of Alabama. The name Appalachian was given to the mountains by the Spaniards under De Soto, who derived it from the neighboring Indians. The name Alleghany was given by the English settlers of the north, which they received from the Indians, and which was supposed to mean Endless. The White mountains of New Hampshire and the Adirondac mountains of New York are really outliers of this range, though separated from it by wide tracts of low elevation. In their Alpine forms and more metamorphic structure, they present also features somewhat different from those which are especially peculiar to the Appalachian range. The Catskills also are outliers less far removed from the main range. These groups will all be found described under their own names. Not including these lateral ranges, the greatest width of the Appalachian chain is about 100 miles. This is in Pennsylvania and Maryland, about midway of its course. Its extreme length is about 1,800 miles. At either end its termination is not well defined, the mountains sinking away and being lost in the hilly country that succeeds to them; and at the south, its gneissoid and other ancient rocks gradually disappearing beneath the cretaceous formations of this region. In all their extent the Appalachian mountains are remarkable, not for their great elevation, nor for their striking peaks, nor for any feature that distinguishes one portion of them from the rest, but for a singular uniformity of outline, particularly of that which defines the summit of the ridges, as well as that which marks their direction. While varying little in height, the ridges pursue a remarkably straight course, sometimes hardly diverging

from a straight line for a distance of 50 or 60 miles; and one ridge succeeding beyond another, all continuing the same general course in parallel lines, like successive waves of the sea. As one curves round into a new direction, all curve with it. Thus the valleys between the ridges preserve a uniform width, and are as remarkable for their parallelism, as are the hills which bound them. An illustration of these peculiar features may be seen upon the topographical map of the anthracite region of Pennsylvania, which accompanies the article *ANTHRACITE* in this volume. By those engaged upon the geological survey of Pennsylvania, the topography of the Alleghenies has been made a special subject of investigation; and by Mr. J. P. Lesley, of Philadelphia, to whom we are indebted for this map, the study has continued to be prosecuted with singular zeal and interest. In his treatise entitled "Coal and its Topography," we find some of the results of these researches. An able paper upon "the Physical Structure of the Appalachian Chain," was read before the American association of geologists and naturalists in the year 1842, by the Prof. Rogers, who were at the head of the geological surveys of Pennsylvania and Virginia, and who had extended their observations into the continuations of the chain north and south from these states. This paper, full of original and highly instructive matter, is still the most complete treatise upon this subject. In the final report of the geological survey of Pennsylvania, the subject will no doubt be more fully discussed, and illustrated by the fine topographical maps prepared upon this work. Prof. Guyot of Cambridge has also given much attention to the physical structure of these mountains, and made careful barometrical measurements of several of their highest summits, both near their northern and southern extremities. The results of his observations were read before the American association for the advancement of science, as were those of the Prof. Rogers. The attention of many other distinguished men of science, both of this country and from abroad, has been attracted to this most interesting feature in the structure of the eastern part of this continent; and their observations of the certain localities they visited have been published in various forms.—The general course of the Alleghenies is that of the coast line opposite to them. The sea makes its nearest approach to them at the mouth of the Hudson river, which is only 50 miles from the passage of this river through the Highlands. Thence as far south as Cape Hatteras, the width of the Atlantic slope gradually increases, till the space between the coast and the Blue Ridge is about 200 miles; and so it continues to the southern extremity of the mountains. This space is a hilly district, gradually becoming of higher elevation as it extends back from the coast. In New England its average height at the base of the mountains is about 800 feet above the sea; in Pennsylvania, about 500 feet,

and farther south about 1,500 feet. From the mountains to the lowest falls of the streams over the edge of the granitic platform, this is for the most part a region of the lowest stratified, metamorphic, and granitic rocks. These lowest falls mark the head of navigation of the streams, and the descent to the lower and more level platform of the upper secondary and tertiary formations, which in the southern states stretch along the coast in a belt sometimes reaching 100 miles in width. The eastern ridges of the chain, rising from their elevated base, do not present the appearance of the height above the sea which they actually reach; and on their western slope, which stretches far away toward the Mississippi, their height is still more completely lost in the elevated and wide-spread plateau. Between Lake Champlain and Lake Ontario, this western table-land is 1,500 above the sea, and from it as a base arise the high summits of the Adirondack mountains. In Virginia and Tennessee, as observed by Prof. Guyot, the bottom of the valley west of the Alleghenies is 1,700 feet above the sea, and beyond it for 100 miles west extends a plateau of 1,500 to 2,000 feet elevation, traversed by longitudinal ridges. All the cross sections from the eastern edge of the granite present first the irregular profile of the Atlantic slope, which is succeeded by the sudden rise to the highest elevation, and this by the wave-like descent and ascent across the valleys and the ridges, and finally terminate in the gradual descent on the western table-land. As first pointed out by Prof. Rogers, the same law is found to obtain in this chain and in the Jura mountains, of steepest general slopes toward the east; but of individual ridges the gentler slopes are toward the east, and the steepest inclinations toward the west. In the mid-region of the chain—in Pennsylvania and Maryland—where the breadth is the greatest, the height appears to be correspondingly diminished. The summits, valleys, and table-land all reach here their least elevation. The highest summits are but little over 2,000 feet above the sea. Still the barrier between the eastern and western waters is complete; and no clean cut through the range is anywhere found, excepting that of the Mohawk river in New York, the highest elevation of which is only 400 feet above the sea. Toward the north and the south from this central portion, the plateau becomes more elevated, as well as the summits that rise up from it. In North Carolina, near the borders of Tennessee, and in the northern part of Buncombe county, the base of the Black mountains, which have been an especial subject of examination by Prof. Guyot, is found to extend from 100 to 150 miles in length, with an elevation of 2,000 feet. Above this many summits are found reaching more than 4,500 feet higher, as the Black Dome, the height of which above the sea is 6,760 feet; the Balsam Cone, 6,668 feet; the Black Brother, 6,628 feet; Cat-tail Peak, 6,615; Hairy Bear, 6,606, &c. The

great elevation of this group makes it the culminating point of the chain. Mt. Washington in New Hampshire, though found by the measurement of Prof. Guyot to be but 6,285 feet above the sea, which measurement differs only 8 feet from that made by the officers of the coast survey, appears much more elevated than the summits of the Black mountains, from its rising from a plateau of not half the height of the base of this group.—In none of the published maps of the states do we find correctly represented those grand and beautiful features of parallelism of ridges and valleys, which characterize the topography of this chain. Lacking such illustrations, any description must fail to convey a clear idea of the peculiar scenery of the Alleghanies to those who have not wandered among its summits, and traced from them its long, narrow and fertile valleys, studied with productive farms and prosperous villages. From the summit of the Blue Ridge in Virginia, the natural features of these mountains are seen in their greatest beauty, as on one side the eye roams north and south over the rich valley of the Shenandoah, watered throughout its length by the river of the same Indian name, meaning the “daughter of the stars,” and bounded by the parallel ridges still farther west of the Fort mountain and the higher Alleghany ridge beyond. Other longitudinal valleys lie between these, each supplied with its own water-courses, and occasionally opening one into another by the gaps, which serve alike for the passage of the rivers and roads. On the other side the view extends over the broad Atlantic slope, and its numerous hills of lesser elevation. Upon one of the most beautiful is the former seat of Mr. Jefferson, called Monticello, which overlooks the university of Charlottesville, founded by him and sustained by his fostering care. The Shenandoah valley is a part of the so-called Great Valley of Virginia, which extends across the state, and is known farther south as the valley of East Tennessee. To the north-east, in its range across the state of Pennsylvania, it is known by other names, as are also the ridges that bound it. But neither the ridges nor the valley lose their continuity; nor does the great limestone formation, which gives fertility to the latter, vary in its properties, any more than do the hard silicious rocks, which rise up from beneath them, and give their sharp outline to the crest of the Blue Ridge and its extension, called the South mountain and the Lehigh mountain of Pennsylvania. Equally beautiful is this valley, and more highly cultivated through Lancaster, Berks, and Lehigh counties, than along the Shenandoah. In the season of harvest, when the fields are covered with the yellow sheaves of wheat previous to their being gathered in, it is a custom with the population of Lehigh county to gather by thousands on a day agreed upon, to witness from a high rock upon the South mountain near Allentown, this spectacle, so grateful to a farming community,

and so attractive to all for its beauty. Across northern New Jersey this valley continues, till the Blue Ridge passes into the Highlands, and loses its characteristic features, as it meets the Hudson below Newburg. The average width of this valley is about 15 miles, and so also is that of the mountain belt, which bounds it on the east. Beyond it, to the west and north-west, other ridges alternate with parallel valleys over a belt of country varying from 80 to 60 miles in width, to the base of the main Alleghany ridge, or in southern Virginia to the foot of the Cumberland mountain. This portion of the range, which in central Pennsylvania, in the region of the Juniata, spreads out to its greatest breadth, it is proposed by the Prof. Rogers to call the Middle Mountain Belt. The portion of the Appalachian chain represented in the map, already referred to, of the anthracite region, is a part of this belt. The geological formations it contains include all those from the metamorphic group to the coal inclusive—the whole series of stratified rocks of the so-called Appalachian system—the aggregate thickness of which, measured as they appear in succession at the surface, is not less than 7 miles. The highest formation of the series is this group of sandstones, shales, limestones, and coal, which are known as the coal measures. This (the coal now of bituminous character) reappears in its order upon the summit of the Alleghany, dipping down its western slope at a steeper angle than the inclination of the mountain, and bringing in other and higher beds as the distance from the mountain increases. In the southern part of Pennsylvania, other parallel ridges succeed to the Alleghany mountains: Negro Mountain, Laurel Hill, and Chestnut Ridge, each a repetition of the other, at distances about 10 miles apart; and each occupying nearly as great a breadth as the valleys which separate them. The capping of their summits are the conglomerate rocks, which underlie the coal measures. These strata arch over the crests of the ridges, projecting in bold cliffs, and on each slope dipping beneath the coal measures, which in the valley-hills attain their greatest thickness. Thus the same strata appear upon the summits, and in undulating lines pass beneath the valleys to reappear upon the crest of the next ridge, and so on till dipping down the western slope of Chestnut Ridge, the coal measures spread in nearly horizontal strata over the western portion of Pennsylvania, Maryland, and Virginia. Their lowermost layers reappear as they rise to the surface upon the other margin of the great coal basin, as far into Ohio as Zanesville, and thence along a line extending to the mouth of the Scioto. In the gentleness of the dips of the strata, this western slope presents a striking contrast to the highly disturbed stratification of the Atlantic slope. There the rock formations, nearer the disturbing causes which have elevated the mountains and metamorphosed the rocks of the most eastern ridges, are thrown into con-

used and intricate positions, and pressed into folds and wrinkles, the prevailing inclination of which is toward the south-east—as horizontal layers of heavy cloth, pressed laterally by irresistible force from one end of the pile, would be lifted into folds, whose general inclination, by the falling back of the arches, would be toward the direction where the force is applied. The direction of the line of force is that of the ridges themselves, or rather of the anticlinal and synclinal axes, the one being the crest of wave-like form into which the strata are thrown, and the other the trough. This, too, is the line of the great fissures, which, now filled with metallic ores, constitute the mineral veins of the chain. It is the line of the rents caused by the earthquakes of the present period; and it is regarded by the Profs. Rogers as the line along which the elevating force that lifted the mountains extended moving onward at right angles to this line, with a wave-like motion, till the result was attained of placing the ridges in their present positions. Toward the south-east, whence the movement proceeded, the axes are crowded near together. Toward the north-west they are repeated at distances gradually increasing, till the undulations at last flatten out and die away in the horizontally stratified regions of the west. The straightness or regular curvature of these axes, and their parallelism in distinct groups, continued for distances sometimes amounting to over 100 miles, without change in the stratification or topography, cannot fail to excite the astonishment of the geological observer. Among these axes are particularly noticed by the Profs. Rogers, the straight axis of Montour's Ridge in the Susquehanna region, which extends about 80 miles; the beautifully inflected axis of Jack's mountain, in the Potomac region, 90 miles in length; and that of the Knobly mountain, nearly a continuation of the last-named, itself 100 miles long. In south-western Virginia, the straight axis of Clinch mountain is traced for more than 120 miles.—The strata of the Appalachian system are all of marine or terrestrial origin. The fossils they contain are all of families belonging to the salt water, or plants of terrestrial growth. The latest or uppermost groups are those of the coal formation. Throughout the whole chain none of the stratified rocks belong to a later epoch. Their elevation, then, must have taken place previously to those periods, when the upper secondary rocks, that lap upon the extreme eastern border of the Appalachian formations, were deposited, and previously to those still later periods, when the great deposits of tertiary marls, sandstones, and clays were produced, which cover the south-eastern part of our country. These mountains are then of much older date than the Alps or the Andes, upon the high summits of both of which rest the rocks of these later formations, containing their characteristic marine fossils. Raised probably by many successive impulses exerted on the same lines (it may be after long intervals

of rest), the rush from the retreating waters appears to have opened those gaps through the ridges, which constitute a peculiar and most interesting feature in the topography and scenery of these mountains, and which could not have been produced by the action of any existing streams. The same rush of waters acting upon piles of strata of various degrees of hardness, and consequent capacities of resistance, impressed upon these the forms appropriate to these properties. This is seen in the sharp outline of single beds of sandstone, which project from the sides of the hill, around which they outcrop; and in the receding of the profile of the mountain against the beds of softer shales and slates. It is seen on a grander scale in the peculiar forms which each of the rock formations gives to the hills or mountains it composes, and which enables one to recognize it wherever met with by a glance at the topography. In the article *ANTHRAHITE*, this subject is again referred to.—The regular arrangement of the rock formations throughout all their foldings and undulations, is rarely disturbed by any of those sudden breaks which are common in other countries, and which bring into contact, by the displacement of portions of the series, strata usually far separated from each other. These "faults," however, are met with in several of the states, but particularly in south-western Virginia, where they extend for about 100 miles in length, their course being the same as that of the anticlinal axes, out of which they grow. They appear to have resulted from the lateral thrust toward the north-west, of the folded piles of strata. They are observed, always beginning on the north-west side of the anticlinal axes, in tracing these along their course, the strata on this side becoming steeper and steeper, till at last they are inverted, and dip toward the south-east. At this point the strata appear to have burst asunder along the line of greatest curvature, and the south-eastern portion to have been lifted up, bringing its lower strata against the higher members on the other side of the line of fracture. The depth of this dislocation, or the extent of the displacement, increases toward the centre of the line of fault; and where the length of this line, as in the district under consideration, stretches along for 100 miles or more, it cannot appear disproportional that the vertical displacement should in its central portions amount to $\frac{1}{4}$ of this distance; and that the lower groups of the Appalachian system, usually separated by intervening strata of 4 or 5 miles in thickness, should be brought in contact, so that the edges of one series abut against the edges of the other. Thus the lower limestones of the great valley of Virginia are seen in Montgomery county, and thence westward along the line of the Virginia and Tennessee railroad, in vertical position, with the strata of the far more elevated series containing coal-beds dipping toward them, as if the more recent formations passed beneath these ancient

groups. The thermal springs, which are of frequent occurrence along the Appalachian chain, and particularly so in Virginia, flow out almost universally on the lines of anticlinal axes, or of the faults. Their elevated temperature indicates the great depth from which they rise, and consequently that to which the folds and fractures of the stratification reach.—The geological formations of the Appalachian belt, comprising all the groups from the granite to the coal, are abundantly productive in the most important ores and minerals, which especially belong to these different formations. In the ancient granitic rocks, which skirt the edge of the lower stratified formations, and sometimes spread out over broad areas, as in the mountainous region west of Lake Champlain, in the highlands of New York and New Jersey, are found inexhaustible repositories of magnetic iron ores, which already are worked to great extent in connection with the valuable beds of hematite ores, that are found conveniently near them, ranging from Canada to Alabama along the line of the great Appalachian valley. These beds occur in great depressions in the lower limestones and metamorphic slates of this range, and sometimes in veins in the same rocks, and are worked in every one of the states through which this passes, everywhere presenting the same peculiar features. They are frequently of extraordinary extent, and though worked in several instances for more than 100 years, the actual depth to which they reach, and their real nature, has never been fully explained. Together with the magnetic ores, they furnish the supplies for a very large proportion of all the iron manufactured in the United States; and the numerous bodies of them still untouched, are a provision for still larger demands for generations to come. The value of these repositories can hardly be over-estimated, particularly when considered in connection with the long extent of their range, not far back from the coast, and the enormous supplies of mineral coal that can be conveniently brought to effect their reduction. Far more valuable are they than the gold found in the granitic and metamorphic rocks of the eastern ranges, though this, judging from the production of certain localities in the southern states, would, if exposed by the great irregularities of the surface, like those of California, be found as rich and abundant as there. It is worked in alluvial deposits enriched from the auriferous veins; and these also contain ores of copper and lead, and occasionally of silver. These deposits and veins are met with in the valley of the Chaudière below Quebec, and are again seen in a few localities in Vermont; but their great development is on the eastern borders of the Appalachians, south of the Potomac. The copper ores met with in the rocks of the Appalachian system have never proved of great importance. They are found along the range of the talcose and micaceous slates of the Blue Ridge, as well as associated with the gold far-

ther toward the south-east. In Virginia, these slates produce some workable beds of lead ore, and display occasionally attractive appearances of copper; but so far, no mines of the ores have been profitably worked, except in the counties of Floyd, Carroll, and Grayson, near the borders of North Carolina. From these mines, discovered only within 8 or 4 years, the production of copper ores shipped to the north in the years 1855 and 1856, has been about 2,000,000 lbs. per annum. Upon the same range, and in the same geological formations, the mines opened about the year 1852, on the southern line of Polk county, Tenn., which is also the north line of the state of Georgia, have proved highly productive, the principal ore being a rich black oxide of copper, resulting from the decomposition of the pyritous ores on the "back" of the veins, into which ores it passes, as the veins are worked below water level. The great extent and productiveness of the lodes of this district give promise of its becoming one of the most important copper mining localities of the United States. In New Jersey, the same range produces the remarkable red oxides of zinc associated with Franklinite, which are worked together, the one to produce the white zinc paint, and the other a superior quality of iron for the manufacture of steel. Farther south along the same belt, are found in the Lehigh valley and in Lancaster county, Penn., the valuable silicates and carbonates of zinc, called calamine, which are worked for the same purpose as the red oxides of New Jersey. Veins of lead ore are found in several of the formations; and in Wythe county in south-western Virginia, a mine in the great limestone formation has been worked with some interruptions for more than 100 years. These lead veins, however, of the lower members of the Appalachian system, have for the most part proved of little importance; indeed, throughout the range of the mountains none of the formations above the metamorphic rocks are rich in any other metallic ores, than the hematites which are occasionally met with, the red fossiliferous iron ores of Formation No. V. of the Pennsylvania survey, called in New York the Clinton group, and the argillaceous ores of the coal measures. The fossiliferous ore follows the outcrop of the red and variegated slates and shales, in which it is found as a stratum of 18 inches to 3 feet in thickness, passing across the states of Pennsylvania, Maryland, and Virginia, and being met with and extensively worked along the shores of Oneida lake, and south of Lake Ontario in New York. It stretches on across the Niagara into Canada West, and is everywhere regarded as a valuable ore of iron, for its richness, the ease with which it is reduced, and the favorable effect it has in regulating the running of blast furnaces when mixed with other ores. The carbonaceous and argillaceous ores of the coal formation supply many of the furnaces in western Pennsylvania, and are made to produce large quanti-

ties of cheap iron worked with the fuel supplied by the beds of coal, that occur as alternating beds with those which furnish the ore. No rock formation is more useful to man for the variety and value of its productions, than the true coal formation. It furnishes the great supplies of anthracite and bituminous coal, beds of fire-clay, and west of the Alleghany ridge abundant beds of limestone. Salt water is obtained by boring artesian wells to lower members of the series, and the brine flows up or is pumped up into the valleys, to be evaporated by the combustion of the coal found in the neighboring hills. In many localities, where the salt-bearing rocks approach the surface, the brine is more readily obtained in large quantities, and the coal is transported for its evaporation. The formations that furnish the salt, also contain great beds of gypsum. Onondaga county in New York is famous for these productions, and in Washington county in southwestern Virginia, solid beds of salt are struck in the midst of the most extensive plaster deposits.—As the Alleghanies abound in the most useful mineral productions, so their surface has been clothed with the most useful species of trees. From one extremity of their range to the other, they have furnished large supplies of the valuable white pine; and many of the less accessible districts of the belt still abound with it. Far toward the north, upon the better soils of the mountains, the hard-wood forests prevail—the fine sugar-maple, of the curly and bird's-eye varieties, its wood harder and closer than that of more southern growth. So of the white birch, the tree which supplied the Indians in a single piece the bark for one of their canoes. The ash and the beech also attain their highest state of perfection in the most fertile soil of these northern mountains. Upon the poorer lands, and along the ravines of the mountains, the "black growth" flourishes—the evergreens, as the different species of the pine family—the spruce, the hemlock, cedar, and balsam-fir; and in the swamps, the hackmatac, or larch. The varieties of the oak appear farther south upon the range, these and the chestnut taking the place of the maple, birch, and beech, and, to some extent, of the evergreens also. The large cherry tree, so valuable for its timber, is met with in Pennsylvania, scattered upon the mountains. In western and southwestern Virginia, it forms forests of itself; but its timber is in this region applied to little use. The white oak, the white poplar, and the white and yellow pines, and the chestnut, are the valuable forest trees of the mountains of Virginia. In some localities still further south, the dark growth of the conifers cover the summits, as found, for instance, by Prof. Guyot in the group in North Carolina, named the Black mountains, for the dark foliage of its balsam-firs, spruce, and hemlock. Among the flowering shrubs, none are more beautiful than the varieties of kalmia and rhododendron, which are found in the greatest profusion upon the slopes

of the Alleghanies and along their water-courses, giving to the rough places of the mountains the rich colors that adorn our cultivated gardens. But though most beautiful in appearance, the laurel is regarded with anything but favor by the explorers of these mountains. To penetrate the "laurel swamps," as the thickets of these bushes are called, is like forcing one's way through the chapparrals of the tropics. Though the sun may shine brightly over head, a compass is as necessary as in the darkest day; and without frequent reference to it, the most experienced woodman is often "turned around," as he threads his way through the intricate mazes of this tangled growth.

APPALACHICOLA. I. A river, formed by the union of the Chattahoochee and Flint rivers in the south-western part of Georgia, which, after running southerly 100 miles through Georgia and Florida, empties into the gulf of Mexico through Appalachicola bay. It is navigable for steamboats through its whole course, and with its branches is supposed to drain not far from 20,000 square miles. The tide runs up 60 miles. II. A bay on the western side of Florida, between St. George's island and the mainland. It is, in fact, an estuary, formed by the river of the same name. III. The capital of Franklin county, Florida, on a bluff at the mouth of the river of the same name, 135 miles south-west from Tallahassee, is one of the most considerable commercial cities in the state, large quantities of cotton being shipped here by steamboats. It is the seat of admiralty jurisdiction, and possesses one weekly newspaper. Population in 1850, 1,000.

APPANOOSE, a county in Iowa, on the southern border of the state, adjoining Missouri, has an area of 510 square miles. The river Chariton, which flows diagonally in direction through it, and numerous smaller streams, furnish ample water power, while the rolling prairies which cover a large part of the surface are fertile, and the water courses are bordered by tracts of timber. Much of the county is still uncultivated, however, the first settlement having been made in 1845. The great staple is Indian corn. The products in 1856 were 557,449 bushels of corn, 125,827 of oats, 12,218 pounds of wool, and 82,878 of butter. Large beds of stone coal have been found at several points. Capital, Centreville. Population in 1856, 7,709.

APPARATUS, a name given to a set of implements or utensils employed in the search for scientific truth, or in its illustration. It is used thus in contradistinction to tools, which are the implements of an artisan or mechanic, while apparatus is employed by an artist. A carpenter uses tools, an electrician or a chemist employs apparatus.

APPARENT, in astronomy, sometimes stands in opposition to real, as when we speak of the apparent motion of the sun, which is in fact a motion of the earth, which we in our minds transfer to the sun, as a child transfers the motion of the boat on which he stands to the

shore. At other times apparent is used for the uncorrected observation, as when apparent altitude is spoken of, which signifies the actual altitude of the star above the horizon as seen by the observer, while true altitude is the altitude after correcting for refraction, dip, parallax, &c. Apparent time is the time by the sun, while true time is time by the clock, or mean time. Apparent days are sometimes longer than 24 hours, sometimes shorter, averaging 24 hours, and clocks are made to run regularly 24 hours for this average time from noon to noon.

APPARITION, a spectral illusion, by means of which an imaginary object produces the impression of reality on one or more of the organs of sense. Apparitions, usually representing human, but sometimes divine, angelic, demoniac, brute, or fantastic beings, have been common in all ages of the world. The great mass of mankind never perceive apparitions, and are unable to perceive them, even when they are said to be present, and to be sensible to the sight, hearing, and touch of those who have the peculiar faculty or disease of ghost-seeing. This faculty does not belong to man in his normal state; it is a function of abnormal cerebration, our knowledge in regard to which is very unsatisfactory in many important particulars. A large proportion of persons in the states of insanity (including delirium tremens), somnambulism, and dreaming, and a very small proportion of those in the possession of their normal consciousness, perceive apparitions. These apparitions, seen in different states, all appear to bear a great resemblance to each other. They may be divided into classes according to the manner in which they are perceived. The largest class is of those which are seen; the second class includes those which are only heard by their voice, step, or the rustling of their garments (for the divine, angelic, and human apparitions are usually dressed in the fashion supposed to be appropriate to their age, sex, or condition); the third class makes impressions on the sense of touch; and the fourth class is of those which are perceived by two or more of the said senses; for, of course, smell and taste are not used for perceiving ghosts any more than for perceiving real human beings. Visible apparitions are usually smoke-like in appearance, and more or less transparent; but the impressions made by some on the senses of hearing and touch are precisely similar to the impressions made by objects whose reality is admitted by all. Apparitions may be again divided into those which are supposed, when perceived, to be mere illusions of sense, and those which are supposed to be objective realities. Perhaps the most noted case of an apparition known to be illusory is that of Nicolai, a bookseller of Berlin, who read a paper on his experience with apparitions before the royal academy of Berlin, in 1799. While he was ill, the spectres of a number of human beings appeared to him day after day for several months. Some of these were the phantasms of living friends,

but most were strangers. The same figure came to visit him daily, followed him about, spoke to him and to each other, so that he could hear them distinctly, and moved about like living persons. Finally, to get rid of their presence, he submitted to be leeches; and, as he lost blood, they moved about more slowly, became fainter in appearance, and before night of that day they had forever disappeared. The perception of apparitions is owing to an abnormal state of the brain is now the general opinion of physiologists and pathologists, but whether that state is a phase of insanity is a disputed question. Many persons whom the world is not willing to believe insane, have asserted the objective reality of apparitions, as witnessed by their own senses. Among these persons are Socrates, Joan of Arc, Tasso, Obelin, Swedenborg, Cazotte, and a vast number of others, who either were not in frequent intercourse with apparitions, or have not a world-wide reputation, and therefore do not deserve to be specially named here. How or when the belief in apparitions originated cannot now be discovered; but that, when once originated, the belief should have found general favor among men, in the earlier stages of civilization, was entirely in accordance with the whole progress of superstition. Men in every age and country have believed in the objective reality of apparitions, and this belief was nearly universal until within the last hundred years, except among the sects which denied the immortality of the soul, and perhaps some of the lowest savages, who had not risen to the conception of a purely spiritual existence. The skeptical and atheistical philosophy of the 18th century suggested doubts of the reality of these apparitions, and threw ridicule on their testimony; and the result has been a gradually extending disbelief of their objective existence, and the general adoption, among intelligent men, of the theory that the reported ghosts of past and present times are or were mere illusions of the senses. Nevertheless, faith in ghosts still prevails, and will probably long prevail, among enlightened nations. Persons in that abnormal state which permits the perception of apparitions possess senses or means of knowledge surpassing, in some respects, the normal senses; and those persons often imagine that this knowledge is communicated by a ghost. Thus a person in a dream, or in somnambulism, or even sometimes in the waking condition, describes events occurring at a great distance, and absolutely unknowable to any man in the normal state, in the same place; or he prescribes the best medicine for a person in ill health, and foretells accurately the future progress of the disease. Such phenomena occur frequently in the mesmeric state; and the apparently superhuman knowledge is often ascribed to information derived from spirits, and the evidence appears so strong that a considerable number of atheists have been converted by its means. In the beginning of this century, Jung Stilling, a

German author of high moral and intellectual worth, published his *Geisterkunde* (translated into English under the title of "Pneumatology"), to prove the reality of apparitions; and about the year 1840 Mrs. Catharine Crowe, a very respectable English lady and authoress, published her "Night-side of Nature," for the same purpose. In 1848, a religious sect, called Spiritualists, or Spiritists, was founded in the United States, on the doctrines that the spirits or apparitions of deceased persons are objective realities, frequently visit the living, are visible, speak so as to be heard, and give true information in regard to a new life which begins after the death of the body. This Spiritist sect was said to number 1,000,000 believers in 1856. Among them are several thousand persons of all ages, sexes, conditions of society, and classes of mind, who profess to frequently see, touch, and converse with spirits; and many of these ghost-seers have an excellent reputation for probity and clearness of thought. The most comprehensive and satisfactory book on apparitions is that of Dr. Brierre de Boismont, entitled "Hallucinations; or, the Rational History of Apparitions, Visions, Dreams, Ecstasy, Magnetism, and Somnambulism."

APPARITORS, the general name for the public servants of the magistrates at Rome, including the summoners, interpreters, lictors, heralds, scribes, and others. They were so named because they were always at hand to receive and execute the orders of the magistrates. In England, an apparitor is either the beadle in a university, who carries the mace, or the messenger of a spiritual court, who serves the process.

APPEAL, in law, is the removal of a cause from an inferior to a superior court, for the purpose of reviewing the decision or sentence of the inferior tribunal. The right of appeal was unknown to the ancient Germans, and very imperfectly recognized by the Roman law, but it is now well settled to be the only direct check on incapacity and malfeasance in the ministers of justice, and is everywhere regarded as necessary to a sound and wholesome administration of law. Every precaution should be taken to guard against the vexatious delays which are the too frequent accompaniment of modern law, by which a wealthy suitor may protract the final issue, and harass a weaker opponent. A wholesome check on the improper use of the right of appeal has been adopted in some British colonial courts, viz.: the payment into court of the sum in dispute, the appointment of a receiver for lands, or security in other cases after verdict by the party appealing. The dependence of a right of appeal on the amount of the cause of action, seems an error, inasmuch as the principles of law are immutable and not referable to value. The finding of a jury on simple matter of fact, cannot be reviewed at common law. If, however, it be a perverse verdict, given in open defiance of common sense and the universal opinion of mankind, or if their assessment of

damages be excessive, or lastly, if the jury, or any of them, be guilty of misconduct, the court, without usurping the function of a jury, may direct a new trial. The decision, on purely legal questions, of any single judge, may be reviewed by the court of which he is a member, and the decisions of the courts may be reviewed by the supreme court, on appeal.—In England, the same general laws prevail. The tribunals alone differ. Doubtful points of common law were formerly reserved by the presiding judge at the trial (who, however, might, on his own responsibility, decline to reserve the point), and then argued before the judges of the supreme court at Westminster. Recently, however, a criminal court of appeal has been regularly organized, composed of the same august body. In civil matters, an appeal lies from the legal decision of a single court to the 15 judges of all the superior courts. This is called a proceeding in error, and must be grounded on the record, and not on any question of fact or interlocutory proceeding. The appeal lies from colonial courts also to the judicial committee of the privy council; from vice-chancellors to the chancellor, and from him to the house of lords. In matters quasi-ecclesiastical and in matters purely ecclesiastical, there is also a system of appeal, the last resort being the judicial committee of the privy council, theoretically styled an appeal to the queen in council.—The process of appeal in the courts of this country resembles, in its general features, that which obtains in England. The losing party may remove the record from the inferior to the superior court, if he raise his objections at a proper stage of the cause, and observe the necessary formalities in preparing and pressing them. The course of procedure is regulated by the principles of the common law, statutory provisions, and rules of court. The supreme court of the United States exercises an appellate jurisdiction over the state courts, where the validity of a treaty or statute of, or authority exercised under, the United States is drawn in question, and the decision is against that validity; or where the validity of any state authority is drawn in question on the ground of its repugnancy to the constitution, treaties, or laws of the United States, and the decision is in favor of its validity; or where a question of construction upon the constitution, a treaty, statute, or commission of the United States arises, and the decision is against the claim under the authority of either. All civil causes, where the matter in controversy is of a sufficient pecuniary value, may be removed, on appeal from the United States circuit or district court, into the supreme court; but a criminal case cannot be so carried up unless the two judges, who may sit at the trial, differ in opinion upon a material point, which they sometimes pretend to do, in order to bring an important question before the highest tribunal known to the law. The circuit courts of the United States exercise an appellate jurisdiction over all cases brought in the district courts, except where the

matter in controversy is of very small pecuniary value. Each of the United States courts has exclusive and original jurisdiction in certain classes of cases; as have also almost all the highest State courts. But in New York, there is a court of appeals, organized solely for the purpose of hearing and deciding appeals from inferior tribunals. It consists of 8 judges, 4 of whom are elected directly by the people, while the other 4 are selected from the justices of the supreme court (the next court in dignity) having the shortest time to serve.—In France, incorrect decisions are also held in check by a system of appeals. The first regularly organized tribunals of appeal in France were about the reign of Louis IX. The French right of appeal, especially in criminal cases, seems to American or English observers to be often frivolously exercised. The French courts of appeal may discharge or amend the judgments of the courts below, and may reduce or increase punishments or the pecuniary awards of juries. The theory of the French appeal seems to be a submission of the facts as stated in the proceedings to the court of appeal, to whose judgment all deductions whatsoever are referred.—In Germany, the system of appeal was commenced in 1496, and is now greatly elaborated; the courts are of the 1st, 2d, and 3d instance. The appeals may be based either on matters of law or fact. Each kingdom has its own tribunals, and the smaller principalities are associated together in districts, for the purposes of courts of appeal. The proceedings of the German courts, like those of the English court of chancery, are excessively prolix and tedious, and entirely in writing—the arguments only being oral: their essence being contained in the pleadings, as deductions from the facts.—Beside the sense in which we, in modern parlance, use the word appeal, proceedings of historical interest known as appeals, were formerly recognized in English law, wherein the term was used as derived from the French *appeller*, to summon or challenge. An offender on his trial might, by permission of the court, confess the charge, and “appeal” another person as the instigator or accomplice of his crime, who, thereupon, might be put on his trial, or fight his accuser. If he was acquitted or if he conquered, the accuser was hanged on his own confession; if convicted or vanquished, the accuser was pardoned, as for service done to the state. Sir Matthew Hale denounced this practice, and it fell into disuse, although, by various statutes now repealed, the indemnity, and even the reward of approvers, was long maintained.—A party injured by a felony, his widow or heirs might also appeal the offender for the price of blood, and, subsequently, for the purpose of punishment. This was distinct from a crown prosecution. The appellee, the person accused, could then demand his wager of battle, which the accuser, if a peer, a citizen of London, a woman, a priest, an infant, or above 60, might decline. There was one other cause in which the appellant might

decline to fight, for example, if the appeal were taken in the fact. The combat commenced by the appellee throwing down his glove, which was lifted by the appellant, whereupon each party affirmed categorically, by an oath, the truth of the accusation and denial, concluding “and this I will prove against thee by my body.” Thereupon the parties must proceed to fight, with club and buckler, in the presence of the court, from sunrise to the appearance of the stars in the evening. If the appellant was vanquished the appellee was acquitted, and his action against the appellant, who was thereupon declared infamous: if the appellee was vanquished, he was hanged forthwith. This custom, known to the ancient Teutons and adopted by the Franks and the nations of chivalry, is no doubt the precursor of the modern practice of duelling. The last occasion on which the appeal and wager of battle were used was in 1818, when a defendant having been acquitted in a very strong case of rape and murder, the brother and next heir of the deceased “appealed” him. The appellee waged his battle, whereupon the appellant alleged circumstances so conclusive of the appellee’s guilt that he exempted him (the appellant) from fighting. The judges decided that the facts were insufficient to sustain his claim of exemption, whereupon the appellant withdrew from the prosecution. The wager of battle was abolished the next year, 59 Geo. III.

APPEL, CHRISTIAN, baron von, an Austrian field-marshal, born at Neusohl, in Hungary, in 1786, commenced his military career as a common soldier, fought in the war against Napoleon, and rose through the various grades of the service to his present distinguished position. He won his last laurels in quelling the Italian revolutionists of 1848–49, and defeating the troops of the king of Sardinia.

APPELLANT, in law, a party to an action by whom an appeal is taken; i. e., a cause is carried up from an inferior to a superior tribunal for the purpose of review, correction, or reversal. The opposite party is usually termed respondent, but sometimes appellee.

APPENDINI, FRANCESCO MARIA, an Italian critic and historian, born near Turin, Nov. 4, 1768, died at Zara, Jan. 1837. He was educated at Rome, took orders in the church, and devoted himself to the instruction of youth. Having been elected professor of rhetoric in the college of Ragusa, on the coast of Dalmatia, he obtained a thorough knowledge of the Slavonian language, of the Illyric dialect of which he published a grammar. He investigated with great diligence every thing which pertained to the history, antiquities, and literature of Ragusa, and published his results in his most important work, *Notizie storico-critiche*. He gives an interesting account of this little republic, now almost forgotten, which for centuries cherished the arts and manners of Europe on a barbarous shore, surrounded by the territories of the Ottoman power. When

he republic of Ragusa, like those of Italy, was subverted by the armies of Napoleon, Appennini was retained as rector of the new college which was established there. The Austrians succeeded the French in 1814, and Appennini was commissioned by the imperial government to superintend an institution for teachers, at Zara, designed to furnish instructors for the schools of Dalmatia. His funeral here, after many years of active labor, was celebrated with great honor. He published several minor works at Ragusa and Zara, the principal of which were memorials of the life and writings of Francesco Gondola, Bernardi Zamagna, and Petrarch.

APPENZELL, a canton of Switzerland, consisting of Outer and Inner Rhodes, the former of which districts, having a population of 45,000, is Protestant, and the latter, having 12,000 inhabitants, Roman Catholic. It is governed by a grand council, which meets the assembled population once a year, for civil purposes. It contains large manufactories of embroidered cotton tissues and Swiss muslins, and numerous mineral springs. Mount Sentis here rises to an elevation of 8,232 feet.

APPERLEY, CHARLES JAMES, son of Thomas Apperley, an English country gentleman of Welsh descent, better known by his *nom de plume*, "Nimrod," as a sporting writer of great ability, considerable knowledge in regard to the horse and the fox-hound, and great fluency, spirit, and graphic power of pen. He was born at his father's seat in Denbighshire, in 1777, and died at London, May 19, 1843. Early in life he entered a crack cavalry regiment, but his career in it was neither long nor brilliant, and he left it under dubious circumstances. He then became a sporting writer, and at once took the highest rank in that line, being the confidential correspondent of the old English "Sporting Magazine," then edited by Mr. Pittman, whose circulation his contributions greatly increased, and from which he received, for many years, a handsome annual salary, beside being kept furnished with such a number of good weight-carrying hunters as should enable him to see, as much as he chose to see, of any pack of hounds he thought proper to describe. It is remarkable, however, that, in spite of all his fondness for hunting and thorough comprehension of its niceties, he was an extremely timid rider and an indifferent horseman; was never seen in the same field with the hounds, after the fox was found; nor was ever known to take a fence. He always, however, picked up enough of what had gone on, from those who had actually seen what he described, and he had so extraordinary a tact and truthfulness of manner in his writings, that it was impossible for those who had not been on the spot, and difficult for those who had, to imagine how a man should describe, point for point, the incidents of a run of several miles, and the conduct of all the various hounds, when he had not seen a dog from the find to the kill,

or done more than keep within remote hearing of their cry.—Hunting, however, was both a passion with him and the study of his life; and his remarks on all its details, from the hunting of the hounds to the riding across country, to the conditioning of hunters, and to fast-coaching—which, next to hunting, was the pursuit of his existence—are all worthy of attention. He is the best writer in his line; and no fact attests this more strongly than his being requested by Lockhart, then editor of the "Quarterly Review," to prepare a series of hunting articles for that periodical, which was a subject quite out of the ordinary rule of its learned and dignified pages. Latterly, Nimrod fell into great disrepute, even among the masters of fox-hounds, who had adhered to him longer than any other gentlemen in England. This disrepute arose from petty meannesses of conduct more annoying to persons of that class than more flagrant acts of dishonor. He had a trick of construing the slightest expression of civility into an offer to give him free quarters for himself and half a dozen hunters for the season. He would also land one pack of hounds, its master, its horses, its man, appointments, the riding of its field, to the very echo; while he would defame another and a better, often with gross personality, simply because in the one case Mr. Nimrod was welcomed and entertained and in the other was treated with coldness. Another offence was to publish accounts of the domestic arrangements of houses where he was received, with familiar descriptions of honorable ladies, all intended, of course, for his own glorification. Thus when his friend Pittman, of the old "Sporting Magazine," died, he immediately got into hot water with his successors. Law proceedings followed, and, in the end, to avoid an English prison, Nimrod fled to the vicinity of Calais, where he remained for most of his remaining life, writing occasionally, when he could find publishers, but not to the increase of his literary reputation, which he materially injured by a biography of the eccentric, if not insane, Jack Mytton. His most valuable work is that on summering horses without throwing them out of condition, which is done by feeding them on green food, in large loose boxes, with clay floors, their shoes being taken off, and their systems lowered by gentle alteratives, instead of the old method of turning them out to grass, where they are tormented by legions of flies, exposed to violent changes of storm, hot sunshine and cold rain, and from which they often come up either lame from the effects of galloping and playing too wildly on the hard ground, or broken-winded from the effects of feeding too greedily on the herbage steeped in dew. This system is now generally adopted in England for hunters, and might be followed with advantage in this country, where the still fiercer heats of summer and tormenting plague of flies are even more adverse to a run at grass than in Europe.—His most agreeable writings are the "Quarterly" articles, about

Melton Mowbray; they are all readable, though evidently written by a man of coarse nature, wanting in tact, and ignorant or careless of the niceties of a high social state.

APPERT, BENJAMIN NICOLAS MARIE, an eminent French philanthropist, born at Paris in 1797. At the age of 18 he was appointed assistant teacher at the imperial school of design, but his tastes soon led him into very different pursuits. In 1815 the desire to benefit his fellow-beings suggested to him the idea of establishing schools for mutual instruction in the department of the North. He applied the principle in the following year to military organizations, and with such results that the foreign armies then quartered in the country were eager to profit by his system. His success in the army was so great that Marshal St. Cyr, minister of war, appointed him to open a normal school for soldiers and non-commissioned officers in Paris. In 1818, 168 of these schools, with 20,000 pupils, were in full operation, and in the course of 2 years, 100,000 soldiers had reaped the benefits of them, from whom many excellent sub-officers were obtained. He was preparing to extend the system to the military hospitals and prisons when a change of the ministry interrupted his projects. He continued, however, his school at the military prison of Montaigu until 1822, when he was himself imprisoned on a charge of favoring the escape of 2 political convicts. During his confinement at La Force, he conceived the idea of improving the condition of the prisons, and upon his release devoted several years to this philanthropic undertaking, making frequent visits to the penal institutions of France, and alleviating as far as possible the condition of their inmates. After the revolution of 1830 he became the Queen's almoner and secretary-general of the society of Christian morality. In 1846 he visited the schools, hospitals, and prisons of Belgium, Prussia, Saxony, Austria, and Bavaria, and published the results of his observations in his *Voyage en Belgique, Voyage en Prusse, Hambourg, ses Prisons et Hospices, and Conférences contre le système cellulaire*. He has also published *Dieu ans à la cour du roi Louis Philippe*. —FRANÇOIS, brother of the preceding, is known in connection with a celebrated process for preserving alimentary matter, and particularly meat, by keeping it out of the influence of oxygen, and hermetically sealed. He has published an account of his process.

APPETITE, in a general sense, means a natural degree of hunger sufficient to give relish for any ordinary kind of wholesome food. It is also applied to the cravings of the more sensual passions. All the physical appetites take rise from the body and are common to animals as well as men. When prolonged beyond a certain period of delay, they lose their pleasurably energizing degree of stimulation, and become painfully exciting or desponding in character. Natural hunger and thirst begin by exciting an appetite which gives a certain relish

to food and drink; but when prolonged exceedingly, the want becomes distressing for a time; then partially subsides for a short period, to recommence more violently soon again, and with redoubled painfulness. By lying quietly in bed all day, or sitting without exercise and drinking water, persons have been known to soothe the pangs of hunger, and live for 10 or 12 days without food. Though commonly applied to the wants of the body only, appetite is sometimes used to designate the wants of the mind; for "man does not live on bread alone."

We often hear people say they have no taste for reading, no relish for serious books; while others have insatiable appetites for novels. They would like to be constantly ingesting poetry and romance into their intellectual stomachs. Not so perhaps with other kinds of intellectual or moral food. Religious books are wearisome to some young people; they have no appetite, no relish for nutriment to build up a strong moral organism. Their appetites are strong for all the dainties of the table, fashionable dress, theatrical displays, poetry, and novels. Morbid appetites are thus engendered by continuous habits of indulgence. Natural appetites are first enfeebled and then vitiated; health of body and of mind are slowly and insidiously impaired, until by and by innate nobility and hopeful youth and strength become effeminate, fastidious, weak, and dreamy, irascible and selfish; and though outwardly perhaps refined and delicate, the person inwardly becomes inactive, apathetic, and unhelpful to himself and to the world. The natural sun of heat and life within the body and the soul, being overcast by the clouds and exhalations of unhealthy organs, leads the victim of insane indulgences to seek externally for artificial stimulants to keep up an appearance of genial warmth and life within; but this can only be apparently successful for a time; and soon the penalty of the transgression of the laws of nature must be paid in full, and with a large additional amount of costs.—It is of great importance, therefore, to watch the appetites of body and of mind; to study the laws of healthy equilibrium; and, above all, to learn to know and understand the dangers of prolonged self-indulgence of the appetites of pleasure in mere animal sensation and wild imagination.—Appetite, properly so called, apprises man of the natural wants of the organism, and compliance with these internal promptings is rewarded by the double pleasure of the sense of taste in eating and drinking, and the feeling of comfort within, arising from the food supplied to the digestive system. But where the mind is weak and the delights of bodily sensation strong, the pleasures of taste or the charm of varied sensation in the palate, dwell on the imagination, and excite it to renewed indulgence of physical sensations, irrespective of the wants of the internal organism, and even notwithstanding its declining health and manifest debility.—And here we may observe that parents often throw

temptations in the way of children which are ruinous to future health of mind and body, by seating them habitually at table with themselves, where many kinds of stimulating highly flavored food and drink which are good, in moderate quantities, for adults, are served abundantly, and children are allowed either to partake of them freely, or they are refused, and thereby hurt in feeling for the time, and tempted afterward to seek in secret that which they have craved in public, with unnatural longing and disappointed wish. And yet it is easy to conceive that where adults are often tempted to indulge the pleasures of mere physical sensation, irrespective of the natural appetite and the material wants of the organism, it is not to be expected that children can either control their love of taste, or brook with ease rebuffs, when others are indulging in the very things before their eyes which to them are rigidly refused. The proper remedy is to let the children take their meals habitually by themselves, and under proper supervision.—Natural appetite, as Guinguené, a French writer, observes, is maintained in a healthy state by sobriety. In this the animals are much superior to many men. Temptations, it is true, come seldom in their way, for they have no alluring arts of culinary and confectionary preparations. Man might learn, however, by the simplest observation, that the use of art is not more elevating, in this case, than the abuse is dangerous and degrading. The abuse of ardent spirits ruins nerves and mind; extreme indulgence in confectionery, pastry, iced creams and sweetmeats, ruins both the teeth and the digestive organs; and yet the natural appetite craves none of these, or seldom and in small proportions, while the morbidly excited imagination dwells with longing on the pleasures of mere physical sensation, regardless of the real wants of nature, or the health of body and of mind thereon depending. The morbid cravings of the sense of taste, or any other sense, must not be confounded, therefore, with the natural appetite excited by the wants of the internal organism.—It is but just, however, to observe, that artificial wants, to some extent, are generated by an artificial state of life and habits, and that sedentary life, in civilized society, requires, in many instances, a sort of artificial stimulus in food and drink, unnecessary to a person living and working in the open air. But here, again, much care is necessary; for a little stimulus is good, but much is even worse for a sedentary person than it would be for a country farmer. It is not stimulus, as such, in fact, that is required for sedentary persons, but more delicate and careful cookery, with wholesome condiments, to make digestion easier for them, as they have less power to digest coarse food and badly-cooked materials, than robust people who are always working in the open air. The natural appetite is everywhere alike or similar with regard to the internal wants of food for the material restoration of the organism, but different ages, sexes, and consti-

tutions, under the same climate, require different kinds of food to keep the body strong and healthy; and all ages, sexes, and temperaments require peculiar sorts of food in cold and warm and temperate regions of the globe. And here the sense of taste comes in with an instinctive aptitude for choosing that which is most fit in quality to satisfy the body, while the proper appetite dictates the quantity, and cloy when it has had enough. There is a proper sphere of sense then, and a proper appetite, and either may be vitiated by disease of body or by folly in the mind. In some diseases a perpetual want of food is felt, and quantity is prized more highly than mere quality. In such a case the body is affected chiefly, the functions vitiated. Medical treatment becomes indispensable. But where the sense of taste alone is vitiated, it may lead to gluttony or drunkenness, as well as to perpetual indulgence in pastry, jellies, jams, hot drinks, cold ices, and innumerable delicacies which are most unwholesome when indulged in frequently and to excess. In this case the original disease lies in the mind or the imagination, and the cure should be directed chiefly there; although the body is of course eventually injured, and may need the aid of the physician, as much as the mind requires the aid of moral treatment. There are three distinctions to be made in analyzing appetite and taste; and these may be illustrated first with reference to animals. All animals have natural appetites arising from the wants of the internal organism, which requires to be repaired by new supplies of food as fast as it is wasted by the wear and tear of life; but the same kind of food is not equally suitable to every species of animal; and here the instinct dictates to the sense of taste, what kind of food is fit for the peculiar organism. The herbivorous tribes require one sort of food, the carnivorous another, the omnivorous again another; and in each of these general distinctions we find minor varieties of taste and appetite, and adaptations of peculiar kinds of food to special sorts of constitution. The ox lives chiefly upon grass, the lion upon flesh, the bear on a mixed diet of roots, fruits, animal food, and honey, when he can find it. The ox, however, does not relish every kind of herb; he takes one sort and leaves another; and this no doubt because it suits his constitution better, and is more agreeable to the sense of taste. The horse feeds differently from the ox, in some respects, although they probably eat many kinds of herbs in common. The sheep again has some peculiarities of choice and fitness in the food selected, and the goat eats with impunity and relish many things which would be poisonous to other animals or man, especially the hemlock. Some carnivorous animals, as lions, eagles, hawks, require the raw flesh of newly slaughtered animals, while others, as the vultures and hyenas, seem to prefer dead bodies in a decomposing state, or not, at least, to feel disgust of taste or smell, while feeding on the putrid offal of dead bodies. What may be the

greatest relish of a lion or an eagle, a vulture or hyena, it is difficult to say; the appetite for quantity being more apparent than the sense of taste in these carnivora, beyond the general preferences above named; but in the bear tribes there is a marked preference for honey manifested, which reveals a sense of taste that works on the imagination, and leads him to incur the risk of being stung to death by an infuriated swarm of bees, rather than forego the sensual delights of plundering the hive, and licking out the honey from the honey-comb when he is master of the spoils. The swollen head and face and ears are nothing to the charm of sensual indulgence. How far the honey may be useful to the ursine constitution, as well as captivating to his senses, it is difficult to say; but this seems not unlikely; for he is a hibernating animal, and therefore probably capricious in his appetites, and liable to alternating states of apathetic languor and restless excitability. Such constitutions are liable to frequent change of state, and consequent caprice of appetite.—And this brings us to the natural varieties of the human constitution and peculiarities of temperament, which cause natural differences in the appetites and wants of the organism, as well as contrast and caprice in likes and dislikes with regard to food. Some people prefer one kind of food habitually or occasionally, and some another; and this, not from the attraction of the sense of taste alone, but from the natural wants of the internal organism. All people require some variety of food; and often, a mere change of diet, properly selected, will restore buoyant health and spirits to a person drooping for the want of change, oppressed by a too long-continued deadening monotony, when medicine or other means had proved of no avail. It is of some importance, therefore, for each one to observe what suits his own peculiar constitution, as habitual diet; and what kinds of food are wholesome, as a change, occasionally, and for short durations only; and nothing is so safe a guide in this as the natural sense of taste, unvitiated by excess and caprice, or dulled by daily habits of superfluous indulgence. Where habits of indulgence are acquired, the only way to partially recover the true sense of taste to suit the appetite, is to fast for a short time or take considerably less than the usual amount of food, for days or weeks, until the appetite becomes decided in its character, and the sense of taste alive to what is suitable or otherwise. The balance can be easily restored by a little moderate feasting afterwards, under the guidance of the appetite and its wayward helpmeet, now in possession of her true senses, and able to discriminate between right and wrong.

APPIAN, a Greek historian, born at Alexandria, in Egypt. He removed to Rome in the reign of Trajan, and abode there till the death of Antoninus Pius. He was by profession an advocate, and at Rome he practised as such. He also filled the office of procurator, and had

charge of the imperial treasury. He wrote Roman history in 24 books on a somewhat peculiar plan. Instead of arranging his facts in chronological order, he followed out to the end the history of the transactions of the Romans with each nation which they came in contact with and subdued, giving to the civil war from the time of the Gracchi to the downfall of the republic, a distinct division of his work. Eleven books of this history, together with some fragments, have come down to us. He had no claim to be classed as a writer with the great historians, whether Greek or Latin, who preceded him in the same field, but his style is perspicuous and unaffected, and his work highly important as a repository of information, much of which would be now sought in vain elsewhere. The best edition of the remains of Appian's Roman history is that of Schweighauser, 8 vols. 8vo, 1785.

APPIAN WAY, the most celebrated of the Roman roads, was first constructed, Livy tells us, by Appius Claudius Cæcilia, censor, 312 B. C. It extended from Rome to Capua, a distance of 125 miles. Diodorus Siculus says that this work exhausted the public treasury, so expensively was it constructed. It was afterwards carried to Beneventum, and finally to Brundisium, which town became the great stopping-point for those who wished to cross over into Asia Minor. It is supposed that Appius Claudius Pulcher, consul and grandson of Cæcilia, carried it on. It was in the whole 880 or 850 miles long, from 18 to 22 feet in width, with paths for foot-passengers on each side, and, like the other Roman roads, was built in the most durable manner: the roadway paved with large blocks of the hardest stone, fitted with great exactness one to the other, so that it was like one solid rock. It was in perfect repair when Procopius wrote, in 480 A. D. Caius Gracchus finally erected milestones along this road, and all the other highways running from Rome.

APPIANI, ANDRÉA, an Italian painter in oils and fresco, born in Milan, May 28, 1754, died in 1818. He belonged to an old but impoverished family, and was forced to commence the study of his art in the humble capacity of a scene painter, whence, probably, he derived his predilection for fresco painting, in which he surpassed all his contemporaries. His best frescoes are in the royal palace at Milan, and the cupola of Santa Maria di S. Celso. Apollo and the Muses in the Villa Bonaparte is also an admirable specimen of his style. Napoleon and most of the members of the imperial family sat to him for their portraits, and he was appointed court painter, a position which he held until the return of the Bourbons. He was also a knight of the Legion of Honor, and of the order of the Iron Crown. An attack of apoplexy, in 1813, rendered him so helpless that he was obliged to sell his drawings and other valuables, and he died, in great poverty, by a second attack.

APPIANO. I. JACOPO I. D., founder of an Italian family which rose to the rank of sovereign.

eign princes, and ruled over Pisa and Piombino from the 14th to the 17th century. He began his career by betraying his friend, Pietro Gambacorti, who was then chief magistrate of Pisa, and had appointed him chancellor of that republic. Having attached himself to the Ghibelline party, he conspired with Galeas Visconti, sovereign of Milan, excited, in 1392, a commotion in the streets of Pisa, during which he effected the massacre of Gambacorti and his two sons, and in the midst of the popular consternation assumed the title of sovereign of Pisa. He intrigued with Visconti against the Florentines, and succeeded only in drawing upon Pisa the arms both of Milan and Florence. He died, leaving his country to the misfortunes of an unequal war, Sept. 5, 1398. II. GHERARDO D', son and successor of the preceding. Having failed in an effort to make alliance with the Florentines, he sold Pisa to Visconti, duke of Milan, for 200,000 florins, reserving to himself only the sovereignty of Piombino and the isle of Elba. The maledictions of his fellow-citizens followed him to the island, whither he withdrew in 1399. His descendants preserved for 2 centuries the principality of Piombino, after which it was united to the crown of Naples. III. JACOPO III. D', one of the line of sovereigns of Piombino, died in 1474. His violent and disorderly proceedings alienated the affections of his subjects, but a conspiracy against him, though aided by Galeas Maria Sforza, duke of Milan, proved unsuccessful. Yet Jacopo was obliged to fortify himself in a citadel which he had already constructed, and soon after, to place himself under the protection of Ferdinand, king of Naples. He consented to receive a Neapolitan garrison in Piombino, and, in return, was permitted to join to his own name that of Aragon. IV. D'ARAGONA, JACOPO IV. D', son of the preceding, sovereign of Piombino, died in 1511. He married Vittoria, the daughter of the king of Naples, and took a command in the army directed by that prince and by Sixtus IV. against Lorenzo de' Medici. He was taken prisoner by the Florentines and obliged to pay a ransom for his liberty. In 1501 Cæsar Borgia took possession of Piombino, and Jacopo in vain appealed to the king of France and emperor of Germany to assist in his restoration. At length an insurrection of the people of Piombino drove out the troops of Borgia and gave back to Jacopo his throne. V. D'ARAGONA, JACOPO V. D', son and successor of the preceding, died in 1545. The sovereignty of Piombino was confirmed anew to him by the emperor Charles V., with the right to place the imperial eagle among his arms. When, in 1589, the combined fleets of France and England threatened Italy with invasion, Cosmo de Florence, who had been charged to defend the coast of Tuscany, wished to place a garrison in Piombino. Jacopo, suspecting his intentions, refused to receive his troops, till 1543, when Barbarossa was in sight of Italy. VI. JACOPO VII. D', the last sovereign of Piombino, and the last of

the family of Appiano. The Emperor Rudolph II. had invested him anew with his states, but he died without posterity, and the principality has been from that time under Spanish and Neapolitan domination.

APPIUS CLAUDIUS. See CLAUDIUS.

APPLAUSE (Lat. *plaudere*), a public expression of approbation. One of the most astounding effects of applause on record is given by Plutarch in the life of Titus Quintius Flamininus, who beat Philip IV. of Macedon at Cynoscephalæ, and proclaimed freedom to the Greek cities at the Isthmian games. The applause of the Greeks on this occasion is thus described: "The shout which they gave in the transports of joy was so prodigious that it was heard as far as the sea. The hyperbolical accounts that have often been given of the effects of loud shouts were verified on that occasion. The crows which then happened to be flying over their heads fell into the theatre. The breaking of the air seems to have been the cause; for the sound of many united voices being violently strong, the parts of the air were separated by it, and a void is left which affords the birds no support. Or perhaps the force of the sound strikes the birds like an arrow and kills them in an instant. Or possibly a circular motion is caused in the air, as a whirlpool is produced in the sea by the agitations of a storm!" The Romans made an art of the act of applause; Suetonius describes 8 species of applauders. The Roman comedians always wind up their plays with a humble petition to the audience to applaud. From the poet Propertius we learn that the audiences rose on many occasions, as is done in our days, chiefly during the singing of national anthems. Seneca speaks of the clapping of hands, and of the waving of robes, somewhat similar to the waving of handkerchiefs of admiring ladies of the present century. Tacitus makes a disparaging allusion to the bad taste of the people from the country, who, by their ill-timed demonstrations, broke the harmony of applause. The Romans had, as we have said above, 8 species of applause, viz.: *Bombus*, a confused din resembling the buzzing of bees, made either by the hands or the mouth; and *Imbrices* and *Testæ*, by beating or sounding vessels placed in the theatres for this purpose, the first producing a noise as startling as that of the dropping of rain upon roofs, and the latter assuming the impressive sound of a sudden and violent smash of crockery. The *plausores* or applauders were divided into *chori*, and disposed opposite to each other like the choristers in cathedrals. Hence there was a kind of concert of applause, which was performed at the end of the play, the impulse to it being given by the chorus, or by the actors who spoke last by the words of *spectatores plaudite* or *valets et plaudite*. There were professors who taught how to applaud skilfully, and who derived a considerable income from this source and from the remuneration which they received from

ambitious authors for concocting a loud and general applause. Nero was a zealous patron and the chief originator of this system of artificial plaudits. When he became possessed with the mania of eliciting admiration from the highly cultivated Greeks, he accomplished his object by taking 5,000 well-drilled *plausores* with him, who kept up a roaring tempest of delight during the performance, in which their master took a part. The custom of applauding favorite preachers by boisterous demonstrations on the delivery of a striking passage, was so common in the early ages of the church as to call forth the rebuke of Augustine and Chrysostom. Coming down to modern Europe we find different modes of applause characteristic of different nations. In Italy the applause is not frequent, but when bestowed it comes in a torrent of enthusiasm. Here and there, however, during the performance a gentle *da capo*, or *da capo, bravo*, or *brava*, may be whispered rather than uttered. In France the system of applause is much grosser. France has brought to perfection the institution of hired applauders called *claqueurs*. These lead away the audience by that force of example which acts so powerfully upon the Latin nations. In France the favorite cry is *bis, bis*. In Germany the applause is frequent and hearty, but not generally graceful. There is no unity in it. It is only the very loftiest performance, such as Rachel's declaiming the Marseillaise, or Devrient performing Egmont, or Wagner or Jenny Lind singing, that overpowers the Teuton's sense of individuality, and makes the audience applaud literally *uno animo, una voce*. In England, applause is somewhat coarse and less discriminating, but in other respects rather resembles the German. The favorite cry is *encore*. In America, the applause resembles the English, only that words are less frequent and action more in favor; except that in the lower theatres the boys in the galleries shout "hi! hi!" In England the favorite mode of cheering among school-boys, attenders of political meetings, and public dinners, is the hip, hip, hurrah, with the hurrah 3 times repeated, which is called "3 cheers," or 9 times repeated, which is "3 times 3," concluding frequently with "one cheer more." The man who gives the signal and utters the preliminary "hip, hip," is the fagman. In the British house of commons the applause is mostly testified by the "hear, hear, hear," oftentimes repeated. In the French chamber of deputies, constituent assemblies, national conventions, or by whatever name these political bodies may be called, the cry is *bon, bien, tres bien*. Carlyle, in his "History of the French Revolution," quoting Montgaillard as his authority, gives us a mournful glimpse of the shifts to which the constitutional ministers of Louis XVI were reduced in the winter of 1791-'92: "Nay, the king's government did likewise hire hand-clappers or *claqueurs*, persons to applaud; 280 applauders at 3 shillings a day; the muster rolls and account

books of which still exist. Bertram Moleville, in a way he thinks very dexterous continues to pack the galleries of the legislature; gets sans-culottes hired to go thither and applaud at a given signal, they fancying it was Petion that bid them; a device which was not detected for almost a week. Dexterous enough as if a man, finding the day fast declining should determine on altering the clock hands.

APPLE (*pyrus malus* of Linnæus, natural family *rosaceæ*). The origin of the apple is unknown. It is mentioned in the Bible, and is therefore supposed to be a native of Palestine. At the present day, in Canaan and surrounding countries, it is worthless as a fruit. Apples were imported into Egypt and Palestine from Damascus. Pliny mentions "the crab, a wilding," as having had "many a foul and shrewd cure given it" on account of its sourness. From these facts, it is supposed that the apple of the Scriptures must have been a fruit differing from ours, since it was spoken of in connection with other choice fruits, and must have possessed good qualities itself. "Patrick's Commentary" puts forth the idea that the word translated apple, means any fruit emitting fragrant odors. The parent of all our apples is said to be the wild crab of Europe. Whether this be true or not, no doubt all our esteemed varieties have their origin in the apples of the mother country. Pliny states that 23 varieties were known to the Romans. Over 200 are known to us, from which selections are made embracing varieties suited to special districts, since those proving most excellent in one locality may prove worthless elsewhere. The rich soils of the western states yield apples unequalled in size, but inferior in quality to those produced on eastern limestone soils, or where vegetable matter forms a less considerable element, and red oxide of iron occurs more frequently. The *P. ornaria* or American crab-apple is a sweet-scented fruit, about an inch in diameter, translucent, fragrant, and of a yellowish-green color; blossoms few, large, rose-colored, occurring in May. Tree, 20 ft. high; native from western New York to Wisconsin, and southward. The *P. rivularis*, having a reddish-yellow fruit about the size of a cherry, which the Chenook Indians eat. The *P. angustifolia* or narrow-leaved crab, natural to the glades of Pennsylvania, thence south. None of our valuable varieties spring from these. The apple is a hardy, slow-growing tree, with an irregular head, rigid branches, roughish bark, strong, broad, green leaves of firm texture, wood close and fine-grained, delighting in limestone soils and deep loams, resting on ridges with north or north-eastern exposures, or upon elevated table-lands. It does well on all soils free from excessive moisture, other than those of a peaty, or purely sandy character. The apple is tenacious of life—fine specimens in this country are now bearing fruit at 150 to 200 years old. The finest sorts last from 50 to 80 years. This fruit is more universally grown, and its uses better understood, than any other. The

orchard products of the United States are stated, in the census returns for 1850, to be worth \$7,723,186, the greatest share of which are apples. Five hundred thousand acres of land were then under orchard tillage, and there is no doubt that 200,000 have been added since that time, making a total of 700,000 acres of orchards. Millions of trees have recently been planted, yet the demand for the fruit is in advance of the supply. So superior is the fruit of our own country, that in Covent Garden market, London, it commands almost fabulous prices. The Newtown pippin, Baldwin, Spitzenberg, swaar, and other equally choice varieties, are highly esteemed for dessert. Roasted, boiled, made into jellies, tarts, pies, preserves, sauces, in the form of apple-butter, or the famous *raisiné* of the French, the apple proves acceptable to all. The expressed juice of well-selected apples, properly prepared, forms a lively, sparkling liquor, superior to many wines, but from its intense acidity, calculated to derange the strongest stomach. Very strong cider is made by allowing the water of the fermented juice to freeze, and drawing off the remainder. Pomona wine is made by adding 1 gallon of brandy to 6 of new cider, allowing the mixture to stand from 6 to 12 months, racking it off, and bottling for use. Cider-brandy is distilled from apple-juice. Verjuice is made from crab apples, and is said to possess medicinal properties. The French use it for sauces, and purifying wax. Immense quantities of apples are pared and cut by machinery, dried in the sun, or slowly dried in ovens, furnishing an excellent article for sauces and pies. Drying by a gentle heat is to be preferred. Where exposed to the hot sun and dews, all the delicacy of flavor is lost. A mixture of apple pulp and lard forms a sort of pomatum. The wood being fine-grained, is often stained black and used as ebony. It is also employed for the manufacture of shoe lasts, cogwheels, and some kinds of furniture. New and choice kinds of apples are derived from seeds planted to produce stocks. One stock in 10,000 may prove better than the original. Known varieties are perpetuated by layers, cuttings, grafting, and budding—principally by the two latter methods. For descriptions of these operations, see ARBORICULTURE.—Dwarf apple-trees are sometimes cultivated for ornament, as when planted for hedges, forming very beautiful ones, when properly selected with regard to color of blossoms, and fruit. They are also planted in limited grounds, for the production of a great variety of fruit in a narrow space. Many varieties grafted on the wild crab seedling do well, and become very dwarf. The French paradise apple is a small variety, and dwarf kinds grafted on it, being less dwarf in its habits than the crab, and more so than the *Douglas* or English paradise stock, which is most frequently employed. In England and France, apples are trained, not only as dwarfs, but as espaliers, and balloon-shape. No training is needed in our climate, as all varieties of apples

fruit perfectly without. Those who wish to pursue training as a matter of taste and curiosity, are referred to French and English treatises on this subject. Thousands of acres of hilly land might be profitably planted with the apple, where no other fruit would answer so well, and other crops are grown with difficulty. Deep limestone lands are the best. If the soil is not already rich, it should be made so, not by the use of forcing animal manures, but by the application of cold composts of manure, muck, salt, lime, and ashes. The tree holes should be large and deep, replacing none of the uncongenial subsoil. After the tree is set at the depth it was in the nursery, cover the soil with loose rubbish to retain moisture, and over which, water or liquid manure may be poured, without danger of hardening the soil. The distance between the trees will be from 25 to 40 feet, according to variety. The soil should be constantly stirred, until the trees are several years established. If well manured with lime, ashes, and cold compost, the bark cleansed with alkaline washes, the decaying, weak, and interlacing branches annually removed, the orchard will improve in quality, and constantly yield large crops of fruit. The apple will not flourish on wet soils. The analysis of the apple made by Prof. Emmons, shows in 100 parts of the ash of sapwood 16 parts potash, 18 parts lime, 17 parts phosphate of lime; in 100 parts of the ash of apple bark, 4 parts potash, 51 parts lime; hence the plain necessity of furnishing a supply of these all-important mineral substances. The apple is not subject to disease. Now and then, a blackening of the terminal shoots or a slight rust of the leaf is to be observed. An enlargement of a limb, here and there, has lately been noticed, but not understood. Insects of several kinds attack this fruit-tree. The borer (*saperda bivitata*), the woolly aphis, the caterpillar (*anysopteria pometaria*), the apple moth (*corpocapsa pomonana*), the bark louse (*coccus*), should be vigilantly warred against. The bark louse may be kept down by removing the dead bark from the tree, and washing with alkaline solutions. The borer may be attacked in this way at the time the eggs are deposited, afterward by a wire thrust into the hole he inhabits. The apple-moth is destroyed by gathering all the fallen apples, and feeding them to swine, or allowing the latter to run in the orchard, where they may feed on the apples as they fall, thus consuming the larvae before they have time to enter the earth. The caterpillar, by removing and burning their nests, or igniting them with a flame from a camphene lamp, thrust among the branches by means of a long pole. A few years of attention on the part of every cultivator would soon rid us of these pests. Select varieties of apples for particular localities, must depend on their adaptation, which can alone be judged of by fair trials and comparisons made by the best pomologists. The national pomological convention, instituted in 1850 by the lamented A.

J. Downing and others, has rendered excellent service. Inquirers are referred to the reports of that society, and the various excellent works on fruit culture. There are recommended, as worthy of general cultivation for summer use, the American summer pearmain, early harvest, early strawberry, large yellow-bough, red Astrachan, summer rose; for autumn use, the fall pippin, gravenstein, porter; for winter use, the Baldwin, bullock's pippin, Danvers winter-sweet, famense, Hubbardson's nonsuch, lady-apple, ladies' sweet, melon, minister, Rhode Island greening, Roxbury russet, swaar, Vandervere, white seek-no-further, Williams's favorite (except for light soils), wine-apple, or Hay's wine-saps.

APPLES OF SODOM, a name given to a fruit of rather fabulous properties, growing, or supposed to grow

"Near that bituminous lake where Sodom stood."

Its description by ancient writers, especially by Josephus, gives it many marvellous characters, such as that the fruit, on being plucked with the hands, is dissolved into smoke and ashes, although presenting a fair external appearance. Travellers have not been agreed in identifying the ancient descriptions with any one of the existing flora of that region. A very general opinion, supported by Hasselquist, is that the "apples of Sodom" are to be found in the fruit of the *solanum melongena* (nightshade), which he describes as filled with dust or ashes, or at least, that when punctured by a certain insect, as it frequently is, the whole interior of the fruit is converted into a fine dust, leaving the rind entire in form and color. Hasselquist saw this plant in abundance in the vicinity of the Dead sea, and also at Ras el Ain, near Tyre. Robinson, in his "Biblical Researches" (1838), considers Hasselquist to be incorrect, and identifies the apple of Sodom with the *acalepias gigantea vel procera*. The Arabs call it *osher*. It is found in abundance on the shores of the Dead sea, and Robinson says that seeing the two (the *osher* and the nightshade) growing side by side, the former struck him at once, from its agreement with the ancient story, while the latter did not. He describes the *osher* as from 10 to 15 feet in height, having a grayish cork-like bark, oval leaves, flowers similar to the silk-weed of the northern United States, and as discharging, like that plant, a milky fluid, when broken. The fruit resembles an orange in size and color, but when even very carefully touched, explodes like a bladder or puff-ball, leaving in the hands only a rind, and a few filaments by which the interior was traversed. This opinion seems to throw the apples of Sodom at length into the domain of science and fact.

APPLETON, or GRAND CHUTE, a village of Wisconsin, capital of Outagamie county, on the Neenah or Fox river, near the rapids called the Grand Chute, 80 miles from the mouth of the river, and 4 miles from the foot of Winnebago lake. The river at this point descends about

80 feet in the course of a mile and a half, affording immense water power, and by means of dams it is rendered navigable for steamboats through its whole course. Through the Fox and Wisconsin rivers, steam communication is maintained between Lake Michigan and the Mississippi. Pop. in 1855, 4,474.

APPLETON, DANIEL, the founder of the publishing house of D. Appleton and Company, in New York, was born at Haverhill, Mass., in 1785, and died March 27, 1849. He commenced business as a general store-keeper, in his native place. He afterward removed to a larger business field in Boston, and subsequently to New York. In the latter place he commenced the importation of English books, and in the course of years, by his energy of character, established one of the largest importing and publishing houses in the United States, which is now continued by his sons.

APPLETON, JESSE, D.D., president of Bowdoin college, born at New Ipswich, N. H., Nov. 17, 1772, died at Brunswick, Me., Nov. 12, 1819. His father, being in narrow circumstances, intended that he should learn some trade, but he showed at an early age such a fondness for study, that this plan was abandoned, and after fitting for college at the village academy, he entered Dartmouth college in 1788. There he made great proficiency in all branches of study, but particularly excelled in English composition, and in the classics. After graduating in 1792, he taught school for two years at Dover and Amherst, N. H., and then prepared himself for the ministry, under Dr. Lathrop of West Springfield. He was licensed to preach in 1795, and in Feb. 1797, was ordained as the pastor of a church in Hampton, N. H., where he remained 10 years, performing his clerical duties in the most acceptable manner, but still finding time, amidst his labors, for literary pursuits. He wrote many valuable articles for the earlier volumes of the "Patriot," under the signatures of Leighton, and Owen, and was one of the founders of the Piscataqua "Evangelical Magazine." He was at this time a trustee of Phillips academy at Exeter, and his advice, in that capacity, respecting its management, was highly valued by the board. In 1808, when barely 80 years old, he was one of the prominent candidates for the office of professor of theology in Harvard university. In 1807 he accepted the presidency of Bowdoin college, and was installed in December. In 1810 he received the degree of doctor of divinity from Harvard university. In the position which he had now assumed, Dr. Appleton performed a prodigious amount of labor, as in addition to the duties appertaining to his office of president, he was often called upon to preach in the neighboring towns, beside which he preached before the Bible, missionary, education, and peace societies of Maine, the American board of foreign missions, the Massachusetts legislature, and numerous other public bodies. The effect of this over taxation of his

energies became visible in 1817, but he kept on in the discharge of his duties until the beginning of 1819, when his disease (an affection of the larynx) grew worse, and a visit to his friends at Amherst failed to benefit him. On Oct. 12 he had a profuse hemorrhage, and died Nov. 12. He had six children, one of whom is the wife of the Hon. Franklin Pierce, late president of the United States. Dr. Appleton was universally beloved as a pastor, and very successful as the head of a college. He was a profound thinker, and his fondness for analytical investigation shows itself in his published works. These consist of several dedication, funeral, and ordination sermons, a sermon before the Bath society for the suppression of vice, and several of his discourses before the associations and societies above mentioned. In 1820 a volume was published containing his inaugural address, and 11 annual addresses to the graduates of the college. In 1822 a volume of his lectures and occasional sermons was published. Among the topics discussed in these are human depravity, the eternity of future punishment, the demoniacs of the New Testament, the evils of war, &c.

APPLETON, SAMUEL, a wealthy and enterprising merchant of Boston, remarkable for his generous philanthropy, born at New Ipswich, N. H., June 22, 1766, died in Boston July 12, 1853, aged 87. His father, Deacon Isaac Appleton, was a highly respected citizen, and had 12 children, of which Samuel was the third. His opportunities for study were confined to the district schools, and at the age of 17 he became himself a teacher. Soon after he became of age, he spent 2 summers in Maine, forming one of a party of young men engaged in settling a new township. Feeling that a merchant's life was more congenial to his tastes, he then entered a country store, but finding his sphere too limited, he came to Boston in 1794, and established himself in trade, with his brother Nathan. He was for many years a heavy importer of English goods, and at a later period largely engaged in the cotton manufacture. He accumulated wealth rapidly, and at his death his fortune amounted to nearly \$1,000,000. But it is not as a successful merchant, but as a benefactor of his species, conspicuous for his munificent charities, that he chiefly challenges our regard. The amount of money which he gave away during his life nearly equalled that which he possessed at his death. Scarcely a day passed in which he did not contribute to some benevolent scheme, and he always desired to have an opportunity given him to subscribe. He was warmly attached to his native place, and endowed the academy there with a fund which secured its permanence. He founded the professorship of natural philosophy of Dartmouth college, with a gift of \$10,000. In his old age he became more and more absorbed with a desire to relieve the sufferings of the poor, and intrusted physicians and others with large sums for

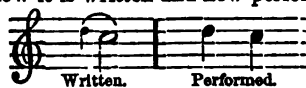
that purpose. Mr. Appleton thought well of human nature, and the confidence which he placed in the integrity of his customers was rarely abused. He cared little for sectarian differences, believing that the same fundamental principles underlie all outward distinctions. Although not blessed with children, his married life was a singularly happy one. He gave his wife, by his will, property to the amount of \$200,000, and placed an equal amount in the hands of his executors, "to be by them applied, disposed of, and distributed, for scientific, literary, religious, and charitable purposes."

APPLING, a county in the S. E. part of Georgia. Area 1,060 square miles; the surface is level, and sandy; name derived from Col. Daniel Appling. In 1850 it produced 68 bales of cotton, 58,794 bushels of Indian corn, 2,088 of oats, and 85,334 of sweet potatoes. There were 17 churches, and 222 pupils attending public schools. Capital, Holmesville; population, 2,949, of whom 2,545 are free, and 404 slaves.

APPODI, a river of Brazil, province of Rio Grande-de-Norte. It rises in lat. 6° 25', flows N. N. E., and after a course of 150 miles falls into the Atlantic in lat. 4° 32'.

APPOGGIATO (It. *appoggiare*, to lean upon), is a musical term employed to denote emphasis, or, more commonly, a connected, gliding mode of delivery, in which every note leans, as it were, upon the other, without leaving any perceptible break.

APPOGGIATURA, derived from the above, is a small note of embellishment, or fore-note, equivalent to either a half or a quarter of the note which it precedes, and whose value it reduces to that extent. It serves to connect the larger intervals, and in bold, rapid movements, affords fuller scope for intonation and florid expression. The following illustration will show how it is written and how performed:



APPOMATTOX, a county of Virginia, S. E. of the centre of the state, bounded on the N. W. by James river, and drained by the sources of the Appomattox river, from which it is named, was set off from the adjoining counties in 1845. Its area is 260 square miles; its surface diversified with ranges of mountains, and covered with forests, and its soil fertile. Tobacco, corn, wheat, oats, and butter, are its staples. It is intersected by the south side railroad (from Petersburg to Lynchburg), and possesses one plank road. In 1850 it produced 186,855 bushels of Indian corn, 76,845 of wheat, 92,116 of oats, 964,100 lbs. of tobacco, and 83,299 of butter. There were 22 churches, and 361 pupils attending public schools. In 1850 its real estate was assessed at \$1,091,671, in 1856 at \$1,481,398, showing an increase of 85 per cent. Capital, Clover Hill; pop. in 1850, free

white 4,209, free colored 185, slaves 4,799, total 9,193.

APPOMATTOX RIVER rises in Appomattox and Prince Edward's counties, and after flowing eastwardly 120 to 150 miles, forming the boundary of several counties, empties into James river at City Point. It has a narrow and deep channel, and is navigable for vessels of 100 tons to Petersburg, about 20 miles from its mouth, and the head of tide-water. By going by a canal round the falls at Petersburg, batteaux, and even vessels of 4 or 5 tons, ascend to Farmville, some 80 to 100 miles farther up.

APPONY, correctly APPONYI, a Magyar family, eminent in the history of their country from the 13th century. The family is divided into 2 branches. During the last three-quarters of a century the Apponys of the elder branch have been prominent in public life, especially in diplomacy.—ANTONY, Count Appony, born in 1782, early entered the diplomatic service of Austria, and became one of the confidential agents of Prince Metternich. From 1826 to 1849 he was Austrian ambassador at Paris. His name was thus connected with the momentous events occurring during that period. One of his sons follows the same career, and already occupies an eminent position. During the revolution of 1848-'50, the Apponys were the leaders of the aristocratic conservative party in Hungary, and unflinching in their devotion to the Hapsburgs.

APPRAISEMENT (Fr. *apprécier* or *appraiser*, to set a price upon), a valuation of property by persons authorized to make it by the law or by stipulation between the parties. In England, appraisers by profession, generally brokers of household furniture, exist, who can act only when licensed. Goods seized for non-payment of rent cannot be sold there until an appraisal shall have been made. The 3 principal kinds of appraisal known to American law, are: of the inventoried property of decedents and insolvents; of property taken for public use; and of real estate seized upon execution. The mode of appointing appraisers, the proper course for them to pursue, and the consequences of their action, vary in different states. The greatest diversity of practice obtains with regard to the last of the three mentioned. Under some statutes the creditor may enforce a sale of his debtor's lands without a previous appraisal; under others, an appraisal is a necessary prerequisite. In some states, land once sold on execution is irredeemable by the debtor; in others, he has a right to redeem it within a reasonable period, 6 months or a year, at the appraised value, with interest. There are states where the creditor has no right to sell upon execution, but may take the property of his debtor in payment so far as it goes, at two-thirds of the appraised value; in case of refusal the levy is discharged, and the creditor must pay costs. Such legislation, as operating to obstruct the execution of civil process, and to make land a legal tender in pay-

ment of debts, would seem to contravene those provisions of the constitution which forbid the enactment of a law impairing the obligation of contracts, or making any thing but gold and silver a tender for the payment of debts. As regards existing contracts at the time of their enactment, some of these laws have been held unconstitutional upon the first ground; but we are not aware that the other question has ever been raised in the courts. To settle private controversies, or to fix the value of property the sale of which is under negotiation, appraisers are often selected by the parties.

APPRENTICE (Fr. *apprendre*, to learn), a person bound to service for a term of years, and receiving in return for such service instruction in his master's business. Apprenticeship, which would seem to have been unknown among the ancients, had its origin in the system of associated trades, which prevailed in almost all parts of Europe in the middle ages. Those only who were free of the fraternity of a trade were allowed to exercise it; and the usual, if not the indispensable, mode of acquiring this freedom was through an apprenticeship to a member of the body, for a time, and under regulations, varying in different towns, and in different trades in the same town. In some instances the rules designed to limit the numbers of the fraternity were so strict as to prohibit the master from taking any apprentice but his own son. In France, the apprentice, after having served in that capacity from 8 to 8½ or 10 years, served as a journeyman, called the *compagnon* of his master, a number of years more, after which he was entitled to admission as a master into the *communauté*, or *corps de marchands*, if the *chef-d'œuvre*, which he was required to deliver to the *jurands*, wardens of the company, showed him to be a proficient in his art. Sons of merchants living with their fathers until they were 17 years old were entitled to the privileges of those who had served their apprenticeship. These companies were abolished at the revolution, but the contract of apprenticeship, although no longer imperative, is still frequently entered into in France, and there are statutes regulating the rights and duties of the parties to it. In Germany, where the system exists to the present day, in a more or less modified form, the term of apprenticeship, *Lehrjahre*, is generally about 7 years, but sometimes less. The apprentice, after serving for the prescribed term, becomes a *Gesell*, like the French *compagnon*, and is entitled to receive from the guild a general letter of recommendation, armed with which he commences his travels. Being recognized and employed by his brethren of the same craft, he works his way from town to town, and on returning with certificates of good conduct during his *Wanderjahre* is entitled to become a master. Goethe has given this system immortality in *Wilhelm Meister*. In Italy the contract of apprenticeship resembled that in use in England. In Scotland and Ireland the regulations regarding it were never rigorous, and those exist-

ing in the latter country were early superseded by English laws designed to encourage immigration.—In the 12th century guilds were formed in England, and shortly afterward, without doubt, apprenticeships came into vogue, although there is no notice of them in the statutes until the year 1388. Previously to that time, however, the word is found upon the statute-book in connection with the practice of the law. Those members of the profession who are now known as barristers, were called until near the close of the 16th century *apprenticii ad legem* or *ad barras* (apprentices at the law or bar of court), being considered learners until they were of 16 years' standing, when they became *servientes ad legem* (sergeants), and were qualified to execute the full office of an advocate. The suitor was called the client of the sergeant, but the master of the apprentice at the law. The London apprentices, many of whom were of high birth, or had wealthy masters, formed an important body and figure in history, particularly during the time of the civil wars. The term of apprenticeship was fixed at 7 years, which had been the ordinary period of service previously, by a statute passed in the reign of Elizabeth. The institution became so widespread that acts designed to limit the number of apprentices were passed, and the courts showed no favor to the laws which recognized and supported the relation, but restricted their operation to trades existing at the time of their passage—a doctrine which, while giving rise to some absurd anomalies, exempted most of the large manufacturing towns from the operation of the act of Elizabeth. In 1813 numerous petitions for the repeal of this statute were presented, and shortly afterward, apprenticeship, as a necessary means of access to a trade, was abolished. It still exists, however, as a voluntary contract, creating similar rights and duties between the parties, and attended by similar incidents with those created by the statutes of most of the United States. By the general law of England and America infants may be bound by deed of their own free will, and by their own act, with the consent of their father, mother, or guardian, or by certain classes of public officers, where there is no guardian, or the child is a pauper, to a term of service in any business until the age of 21 years in the case of a male, or of 18 in the case of a female. In indentures by public officers, a covenant requiring the child to be instructed in some or all of the common English branches is usually inserted, and a way is prescribed for the redress of grievances on both sides. Provisions have been made in the legislation of England and in many of the United States, regulating the character and amount of the work put upon the apprentice by the master. It is the better doctrine that a contract of apprenticeship is not assignable or terminable without the consent of all the parties to it. As no special form of indenture is prescribed, the parties vary the covenants to suit themselves. In England the apprentice pays the master a

certain sum for taking him; in this country, as a general thing, nothing is paid. Sometimes the apprentice pays for his own board and lodging; sometimes an allowance for this is made. In the New England states farmers often take apprentices in husbandry, to whom they agree to give certain perquisites, such as a suit of clothes every year and a sum of money at the termination of the connection. In some trades wages are paid for work during the later years of service, and implements of trade granted at parting.

APPROXIMATION, in mathematics, signifies an approach to exactness, which may be carried to any required degree. It may be illustrated by the decimal fraction .8888, &c., which becomes the more nearly equal to $\frac{1}{2}$ the further the row of figures is carried out. Methods of approximation are among the most important practical results of modern mathematics, and play a striking part in the intricate calculations of astronomy. Approximation is most frequently employed where exact results are unattainable. The rule of false or double position in arithmetic is one of the most general and valuable processes of approximation.

APRAXIN. I. FEDOR, a Russian grand admiral, born of an eminent Russian noble family of Tartar origin, in 1671, died Nov. 10, 1728. He was one of the leading men of the reign of Peter the Great, and is especially remarkable as the creator of the Russian navy. During the war between Sweden and Russia he expelled the Swedes from Ingermanland, in 1710 conquered Viborg in Karelia, and when war with Turkey broke out, in 1711, he commanded in the Black sea. In 1713 he attacked Finland from the sea, and fearfully devastated the shores of Sweden, destroying hundreds of villages, many towns, and iron-works. These devastations obliged Sweden to sue for peace, which was concluded at Nystadt in 1721. He accompanied Peter in his warlike expedition against Persia, and served on the Caspian sea. He always enjoyed the greatest confidence of Peter, though firmly opposed to his reforms. II. STEPHEN FEDOROWITZ, grandson of the former, died Aug. 31, 1758. When young he served in the army of Munich against the Turks, rose rapidly, and, returning to the court of the Empress Elizabeth, distinguished himself by his decided opposition to the policy of the king of Prussia and his diplomatic adherents, including Count L'Estorg, the favorite of the empress. At the beginning of the 7 years' war Apraxin, with the rank of field-marshal, commanded an army against Frederic II. In May, 1757, he invaded Prussia, took Memel, advanced into the interior, destroying every thing by sword and fire, and, on August 30, won the battle of Grossagern-dorf against the Prussian general Lewald. Instead, however, of marching on Berlin, to which capital the road was open, Apraxin retreated to Courland, having, as it is pretended, received news of the sickness of the empress Elizabeth, and having conspired with the grand chancellor

Bestusheff to raise to the throne her grand-nephew Paul, over the head of his father, Peter III. After the recovery of the empress, Apraxin was tried by court-martial, but died in prison before the conclusion of the trial.

APRICOT, a well-known fruit, cultivated in the temperate regions of Europe, Asia, and America. It is said to be a native of Armenia, its Latin name being *Armeniaca*. It is cultivated as a standard tree, and also on walls, where the heat of the sun is otherwise insufficient. The fruit of the standard trees is better in flavor than that of wall trees. The rules for training the apricot are similar to those for training the peach.

APRIES, a king of Egypt, the Hophra of the Bible, and the Vaphes of Manetho, was the 7th king of the 26th Egyptian dynasty, and succeeded his father Psammis about 593 B. C. Herodotus tells us that he conquered the Tyrians in a naval battle at Sidon, and reestablished Egyptian power over Syria. He was defeated in an attempt upon Greece. His subjects revolted and made Amasis king; a contest followed between the two; Amasis was successful, and Apries was strangled, 570 B. C.

APRIL, the 4th month of the year, consisting of 30 days. With the Romans it was the 2d month of the year. Julius Cæsar added the 30th day to it. In the time of Nero it was called *Neroneus*. It is supposed to be derived from *aperire* to open, because the buds open themselves at this period. In the Athenian calendar, the latter portion of Elaphebolion and the greater part of Munychion correspond to April. Charlemagne, in his new calendar, called it grass month, the name still given to it by the Dutch. Romme's French revolutionary calendar merged it into the greater portion of Germinal and the commencement of Floreal. On antique monuments, Aprilis is represented as a dancing youth with a rattle in his hand.

APRIL CEREMONIES. The first of April is called in the English language April fool's day, but the custom of sending people on empty errands and laughing at them, is common in every country of Europe, and wherever the European races have settled on this continent. Two accounts are given of its origin. The oriental scholars say that it is derived from the *huli* feast among the Hindoos, where a similar custom prevails. The older opinion is that it comes from a celebration of Christ's being sent about to and fro between Herod, Pilate, and Caiaphas. In France the fooled man is called *poisson d'avril*, meaning a silly fish, like a mackerel, easily caught. In Scotland he is called *gowk*, which means a cuckoo.

A PRIORI, **A POSTERIORI**, are adverbial expressions used to denote different logical processes and modes of induction. They are as old as Aristotle. *A priori* is said of reasoning from cause to effect, *a posteriori* from the effect upward to the cause. They are used also with reference to ideas; those which are founded on intuitive perception, such as the differences of

time and space are *a priori*; those founded on experience, such as the deductions of physical or historical research, are *a posteriori*.

APROSIO, **LUIGI**, known also as Father Vintimille, an Augustine monk and author, born in 1607, died Feb. 23, 1681. In 1639 he was appointed professor of belles-lettres, at the convent of St. Stephen in Venice, and subsequently vicar-general of Santa Maria della Consolazione. He possessed a fine library, was an elegant scholar, and well versed in the art of reading cipher. Although an industrious writer, he left comparatively few works.

APSHERON, or **ABCHERON**, a peninsula in the Russian dominions, extending into the Caspian sea, lat. 40° 32' N. long. 50° 12' E. Its soil yields sulphur and inflammable gas, and it is famous as the place of the sacred flame so venerated by the fire-worshippers of Asia. It affords large quantities of black and white naphtha, and annually furnishes for export, saffron, madder, and salt, from the port of Bakoo, on its south coast.

APSIDES, the ends of the longest diameter of the orbit of a planet, moon, or comet; that is, the points of perihelion and aphelion in a planet's, of apogee and perigee in the moon's orbit. These points move slowly forward in the same direction that the revolving body moves. The earth, therefore, in going from apogee to apogee, that is, in an anomalistical year, 365d. 6h. 13m. 46s., makes more than a complete revolution round the sun.

APSLEY RIVER, East Australia, rises near latitude 31° S. and long. 151° 40' E., flows eastward, and enters the ocean at McLeay river.

APSLEY STRAIT, Timor sea, off the north coast of Australia, between Melville and Bathurst island, length 46 miles. A now abandoned British settlement was made on this strait in 1824.

APT, a town of France, department of Vaucluse. It is enclosed by old walls, and has many Roman antiquities, manufactures of woollen and cotton fabrics, and earthenware. It was embellished by Cæsar.

APTERAL (Gr. *a priv.* and *πτερον*, a wing), an architectural term, used particularly with reference to the temples of the ancient Greeks and Romans. It is applied to buildings which have no lateral columns, but may have porticoes of columns projecting from their ends; that is, to buildings which are prostyle or amphiprostyle, and opposed to peripteral. The Greek temples were for the most part peripteral, as the parallelogrammic temples of the Romans were generally apteral prostyles. The latter have been much more frequently followed in modern churches and edifices.

APTHORP, **EAST**, a clergyman of the church of England, eminent as a writer, born at Boston in 1733, died at Cambridge, England, April 16, 1816. After completing his studies at Jesus college, Cambridge, he was sent as a missionary to Cambridge, Mass., by the society for propagating the gospel in foreign

parts, in 1761, where, after a time, he became involved in a controversy with Dr. Mayhew, concerning the aims and acts of that society, which made him very unpopular, and ended in his returning to England, where he preached for many years. Among his published writings is an answer to Gibbon's theory of the causes of the spread of Christianity.

APTITUDE, fitness, tendency, disposition. This word is adopted from the French, in which language it is applied to persons, to denote their natural or acquired fitness for peculiar functions, occupations, positions, or professions. It is derived from the Lat. *aptus*, signifying fit for, inclined to, qualified for, ready, quick, and apt. An apt scholar means a person who learns easily, willingly, and well, compared with one who studies unwillingly, and learns imperfectly. Aptitude, properly defined, refers to vocation. Social, political, and religious life, industrial, commercial, artistic, and scientific developments, consist of an extensive variety of functions and occupations, professions and vocations. Some persons are born with natural aptitudes for one vocation, some for another; some have natural aptitudes for industry or commerce, others for art or science, poetry or eloquence, painting, music, mathematics, chemistry, or natural philosophy. Some have natural aptitudes for civic life, political intrigue and government, military conquest and adventure, dramatic representation, or religious ministrations, and the propagation of the faith.—Men of genius in every line are those who have the highest degrees of aptitude for the vocations in which, respectively, they stand preëminent in history. Many persons are obliged to learn professions, and occupy positions, for which they have no natural aptitude; they learn against the grain, and do imperfectly, without attraction for the work, or interest in the calling, that which others in the same vocation, who have natural attractions for the work, do well, and easily, and pleasantly, both to themselves and to the world at large. There are good and bad husbandmen, good and bad housewives, good and bad tradesmen, good and bad artists, good and bad preachers, teachers, governors, physicians, soldiers, poets, orators, and writers. Not that nature made mistakes in giving or withholding aptitudes for every vocation; but man has not yet learned to give to every man and woman such an education as develops every natural aptitude, and such a liberty of choice in occupation or vocation, as shall ultimately put "the right man in the right place" in all professions, functions, and positions.—Many men have military aptitudes and instincts, but few are Alexanders, Cæsars, and Napoleons; many have the gift of oratory, but few are marked in history as Demosthenes, Cicero, Mirabeau, Sheridan, Patrick Henry, and Daniel Webster. Many have natural aptitudes for dramatic display, and even attain to much perfection in the art, but Garrick, Talma, Kemble, Mrs. Siddons, Rachel, and Ristori, shine forth as stars of the first magnitude in

the history of dramatic eminence. Aptitudes and genius, therefore, belong to the same order of distinctions in human nature, but the latter, only, holds the highest rank, while all the lower and the intermediate degrees are filled naturally by the former. A man or woman may, however, have more aptitudes than one, and these of different degrees of power; and those who have great genius in one, may be inept, and even below mediocrity in almost every vocation but the one in which they are preëminent. A lion may be powerful and strong, but he cannot charm the world as a nightingale; nor can a grave philosopher delight the world as much as a bright dancing girl or Jenny Lind. Wisdom is justified of all her children, and God has endowed man with natural aptitudes for every legitimate vocation. These aptitudes, however, often lie uncultivated, as herbs, and weeds, and animals run wild in prairies, forests, marshes, and deserts on the globe, with here and there a garden, and a cornfield, a park, and running stream, to show what man can do when natural aptitudes within are duly educated and applied.

APULEIUS, the greatest of the Roman Platonists, was born in the 2d century of our era, about the time of Antoninus Pius, at Madaura, in Africa. His mother was a descendant of Plutarch. His learning seems to have been various; for after speaking of having mastered the primary branches of study, he says: "But I drank of other cups beside these, at Athens; of poetry, the fabulous; of geometry, the limpid; of music, the sweet; of dialectic, the rough and unpleasant; and of universal philosophy, the never-satisfying and nectareous cup." His desire to become acquainted with all the mysteries of philosophy and religion prompted him to undertake many journeys, which consumed his fortune. Coming to Rome, he was obliged to sell his clothes in order to obtain the sum necessary for his initiation into the service of Osiris. He soon repaired his fortune by marriage with a rich widow, whose relations instituted legal proceedings against him, alleging that he had used magic to win her property and affections. But in his defence, Apuleius satisfied the judges that a widow of 14 years' standing needed not the constraint of magic, in taking a husband younger than herself. The most celebrated of the numerous works of Apuleius, is the "Metamorphosis, or Golden Ass," a philosophical romance, written, according to Warburton, to ridicule Christianity. But the more probable design of the author was to show, under the guise of allegory, that a voluptuous life leads to bestiality; from which a man can be lifted only by cultivating virtue and religion. His writings on ethics and metaphysics are a good epitome of the works of Plato. But the development of that philosopher's more profound doctrines was reserved for subsequent inquirers.

APULIA, a province of south-eastern Italy, situated between what has been called the spur

and the heel of the boot, to which the peninsula has been compared; the former consisting of the mountainous promontory of Garganum, now Monte Gargone, to the north of the Sinus Urias—gulf of Manfredonia—and that of Iapygium, now Capo Leuca. It is now called La Puglia, and is a constituent portion of the kingdom of Naples. Of its original inhabitants, the Apuli, little or nothing is known; but it appears that, in its early stage, it was but a small province, lying between the Ager Frentanus and the province of Daunia; and as such it is described by Strabo and Pliny. In its largest extent, as it was understood by the Romans, it extended from the river Tifernus on the Frentanian, or north-western frontier, to the river Bradanus on the Lucanian, or southern side; was divided from Samnium by a line, from head-water to head-water of these two rivers, and embraced all the Adriatic sea-coast, for above 4 degrees in length, including the two promontories and the waters of the gulf named above, as well as the whole eastern shore-line of the gulf of Otranto. It contained, therefore, in this tract, the countries of Daunia, Peucetia, Calabria, Messapia, and the Salentini. This district was early settled from Greece, and formed a part of what was known as Magna Græcia; as is indicated by the tradition that Diomed, the son of Tydeus, settled on its coasts after the Trojan war, and was treacherously murdered by Daunus, king of the Daunians, whom he had aided against his enemies, the Messapii. The whole of this part of Italy was known to the Greeks as Iapygium, from Tapyx, the west-wind, which blew over it to the Hellenic shores; a name which seems never to have been known to the Romans, more than was that of Apulia to the Greeks. It was very fertile, and famous for the quality of its wool, especially that of the province of Luceria. Its principal rivers were the Tifernus, Cerbalus, Aufidus, and Bradanus, now the Tiferno, Cervaro, Ofanto, and Brandano, and its most considerable towns, Arpi, Luceria, and Arpinum, of which scarcely a relic at this time remains; indeed, the country is little better than a fertile desert, and is said to contain, to-day, more sheep than it does men.—So late as the second Punic war, the Greek colonies were both powerful and populous, in this quarter of Italy; and it was here—owing, perhaps, to the scarcely extinguished enmity of the population to their Roman masters—that occurred most of the events of the second Punic war. It was here, on the banks of the Aufidus, that was fought the dreadful battle of Cannæ, the severest defeat that ever Rome endured, during her years of greatness. It was here, in the town of Canusium, that, when all the noblest of the young officers who had escaped that carnage were resolved to forsake their country, as already fallen, and sell their swords to the highest bidder, Publius Cornelius Scipio, the future conqueror of Hannibal, confirmed their wavering courage, and forbade them to despair

of the republic. It was here, not far removed from the scene of his mightiest triumph, that, as the great Carthaginian lay in his lines, expecting the arrival of his brother Hasdrubal with reinforcements, that brother's bleeding head was thrown into his trenches, telling him that the last hope of Carthage was at an end. Lastly, it was on the highlands of this Apulia that his eyes rested, amid their tears, for the last time, as he sailed from the shores of that Italy which he had held for 15 years as a conqueror, to fight his last battle for Carthage, on her own soil, and in vain.—Next to her share in the Punic wars, Apulia has to boast that she gave birth to the poet Horace, who was a native of Venusium, on the banks of the Aufidus, and who has recounted, in lyric verse, many of the passages of his childhood and youth before he visited imperial Rome; how that "the wood-doves covered him with fresh leaves, when he had fallen asleep, a child, on Mt. Vultur in Apulia;" and how "the wolf fled from him, although unarmed, while celebrating the charms of Lalage, in the beech-woods of Daunia." Apulia, during the period of the decline and fall, shared the fortunes of the western empire. During the middle ages, it was the scene of many of the exploits and adventures of the Normans of Aversa.

APURE, a river of Venezuela, having its source in the eastern chain of the Andes, near St. Christopher, and passing through the plains of Caracacas in a N. E. direction, uniting with the Orinoco, of which it is an important tributary, in lat. $7^{\circ} 36' N.$ long. $66^{\circ} 36' W.$, at a height of only 224 feet above the sea level. According to Humboldt, its mean descent is about 14 inches to the mile; but the current in the lower part of its course is hardly perceptible, and any rise in the waters of the Orinoco causes it to overflow its banks. The lands thus overflowed yield, after the water has retired, a rich and excellent pasture. The Orinoco steamboat company have obtained from the Venezuelan congress the exclusive privilege of navigating the Apure.

APURIMAC RIVER, called also the Ucayali, one of the principal sources of the Amazon, rises by several branches in the Andes, at a distance of not more than 50 miles from the Pacific coast. Its most southern tributary, the Rio Chava, according to Lieut. Gibbon, rises near Oaillomas in S. Peru, lat. $15^{\circ} 20' S.$ long. $71^{\circ} 15' W.$ Its northernmost affluent, the Rio Jauja, rises in lat. $11^{\circ} 20' S.$ long. $76^{\circ} 5' W.$, at a distance of only about 60 miles from Lima. After the union of several of these tributaries, its course is northward, for nearly 400 miles, when it turns to the N. E. and unites with the Beni, another of the sources of the Amazon, and the two, after receiving several other streams of considerable size, form the Grand Para, which, after a northerly course, unites with the Amazon, in lat. $4^{\circ} 30' S.$ long. $73^{\circ} 20' W.$

AQUA, the Latin word for water; a favor-

ite prefix of the old alchemists to various fluid mixtures, as *aqua-fortis*, now called nitric acid; *aqua-regia*, the mixture of nitric and muriatic acids, used to dissolve gold, the king of the metals, now called nitro-muriatic acid, or nitro-chlorohydric acid; *aqua-vita*, now alcohol; *aqua-marina* is an old name given to a fine variety of beryl from their color resembling the green of sea water. Pliny speaks of them as those *qui viriditatem puri maris imitantur*. The chemical symbol used to designate water is *H₂O*, and also *H. O.*, the latter indicating its composition, viz., 1 atom of hydrogen and 1 of oxygen.

AQUA TOFANA (*aqua della Toffanina*), a secret poison employed in Italy during the last half of the 17th century, and said to have been first invented by a woman named Tofana. Tofana appears to have been a native of Palermo in Sicily, but afterward removed to Naples, where she exercised her criminal art on a large scale, and whence the poison derived one of its names, *acqua di Napoli*. After a long impunity, suspicion being aroused, Tofana was arrested by order of the viceroy and thrown into prison. The date and manner of her death are uncertain; according to Labat, a French traveller, about the year 1709 she was seized in a convent in which she had taken refuge, and having, on being tortured, confessed her crimes, she was strangled in prison. On the other hand, Keysler, a German traveller, says he saw her in prison at Naples, a little old woman, in 1780. The poison was put up in small phials, labelled "manna of St. Nicholas of Bari," with an image of the saint on one side. Incredible and contradictory accounts are given of its nature and effects; it is most probable that it was essentially a strong watery solution of arsenic obtained by long boiling. The use of such an article, even in the dose of 5 or 6 drops, frequently repeated for a length of time, would cause death with many of the symptoms ascribed to the aqua Tofana. At present the symptoms would at once excite suspicion, and modern chemistry would with unerring certainty detect the poison; but in the 17th century, with no means of such detection, it is not wonderful that it was a long time used without discovery, and that deaths were often attributed to it, with which it had nothing to do.

AQUAMBOE, or **AKAMBO**, a petty kingdom of Africa, Upper Guinea, east of the river Volta. It has a town of the same name.

AQUAPIM, a maritime state of Africa, upper Guinea, forming the northern border of the gulf of Guinea, in lat. 60° and long. 0. It contains an indolent population, who cultivate very little of their district, which is very fertile inland, but live mostly on yams and fish. Gold dust and palm oil are obtained here.

AQUARIANS. I. Those who, from scruples against the use of wine, were in the habit of consecrating water for sacramental purposes. The tendency to those ascetical views of life, so early manifest in Christian ethics, and which culmi-

nated in the rigid monasticism of the 9th century, was received into Christianity through the Oriental Gnosticism, and first into the Antiochene theology. Gnosticism had taken rank hold in Christian philosophy as early as the 1st century. According to the dualistic theory of the Gnostic philosophy, the material world was the creation of an evil power. To crucify the flesh, with its affections and lusts, became a very literal and intense duty, involving such mortification of all physical passions as would most effectually deliver the individual from the power of this evil creator. Out of this ascetic view of life springs *Aquarianism*, among a multitude of similar manifestations. The Aquarians were also called *Encratites* and *Hydroparastata*, because they offered water. They are to be referred to the 2d century for their origin, and to Tatian, a disciple of Justin Martyr, as their founder. II. There was also another body of Christians having their origin about the same time, known as *Aquarians*. They used water in the sacrament, not from principle, but from policy. During the Roman persecution of Christians, when they were under the necessity of preserving secrecy, many Christian disciples would not use wine in the morning sacrament, for fear of being detected by its odor, while they made no scruples of using it in the evening. These politic Aquarians of course ceased to exist, with the civil tolerance under Constantine. Ascetic Aquarianism, on the other hand, though not distinctly appearing as the symbol of any sect after the close of the 4th century, has nevertheless perpetuated itself in the sentiment of many Christians up to this day, who have scrupled to use fermented liquors in the sacrament.

AQUARIUS, THE WATERBEARER, is the sign of the zodiac into which the sun enters about the 20th of January,—so named either from Ganymede, Jove's new cupbearer, or more probably from the season, when the sun is in that sign, being rainy. It is designated by ♒. Aquarius is also the name of that constellation which was in the sign Aquarius at the time that the signs were named, but which, by the precession of the equinoxes, now occupies the next sign, ♓, Pisces. A similar equivoque occurs with each sign of the zodiac.

AQUATIC ANIMALS are those which live in water altogether, or frequent the water constantly in quest of food. There are numerous tribes of aquatic animals in each of the 4 realms or departments of the animal kingdom. One whole class of vertebrata, the fishes, live entirely in the water; and many tribes of birds and reptiles are aquatic in their habits and organic conformation, seeking food and pleasure in or on the water. Several tribes of the mammalian class are also aquatic animals, some living entirely in the water, as the whales and dolphins, while others frequent the water for subsistence, as the otter and the beaver. Many tribes of the articulata, as the crabs and lobsters, shrimps and prawns, are

aquatic animals; and most of the mollusca, oysters, clams, &c., are aquatic. The radiata, also, consist mainly of aquatic tribes; and altogether the inhabitants of water may be much more numerous than those of land; but the popular term aquatic animal is not so much applied to fishes and such animals as live and breathe entirely in the water, as to those which live on land and breathe the air, although they fish in water for their daily food, and in organic conformation, are especially adapted for aquatic habits and pursuits. Those which live entirely in water, and breathe air, as the cetaceous animals, are commonly called fish, although they are, in fact, mammalian aquatic animals.—The element in which animals habitually live, or to which they resort for the purposes of procuring food or seeking shelter, is intimately connected with their outward forms and internal structure, as well as with their habits and economy; and Aristotle made this a leading principle of classification. "Animals," he says, "may be distributed into different classes according to their manner of living, their actions, their character, and their parts. Considered according to their manner of living, their actions, and their character, they are divided into terrestrial and aquatic. The aquatic are divided into 2 classes: the one, as is the case with many fishes, pass their whole life in the water, breathe that element, and find their food in it; nor do they ever leave it: the others obtain their food in the water, and habitually reside in it, but they do not breathe it; they breathe air, and bring forth their young on dry land. Among the latter, some are provided with feet, and walk upon dry land; others have wings and fly; and others, like the water-serpent, have no feet. Aquatic animals inhabit seas, lakes, rivers, and marshes."—Since the time of Aristotle much more definite views of aquatic animals have been given to the world. Organic structure is now minutely studied in relation to the habits and the habitat of animals. Those which reside entirely in the water, and seek their food and produce their young in that element, have their organization strictly adapted to these purposes and these conditions. The extremities by which the acts of walking and flying are performed would be unsuited to animals residing in an element of the same specific gravity as their own bodies. Fins, therefore, are given to fishes, and flippers to the whale. The real organ of progression in these instances is the body itself, which is so formed, and possesses such muscular vigor, that the animal propels itself forward, with a force and velocity proportionally greater than in any other class of animals. The great majority of these animals, the fishes, not only reside altogether in the water, and seek their food there, but they breathe that element, and are furnished with an appropriate apparatus for extracting oxygen gas from it. These tribes may reside in the ocean, at any convenient depth, and for any length of time,

without coming to the surface for the purpose of breathing. They are organized for rapid movement, therefore, in a horizontal direction, and comparatively slow ascending or descending motion. The tail is broad in a vertical direction, which enables them to turn with astonishing rapidity, and is no impediment, but rather an assistant to their forward movements. The case is different with whales, and other marine mammals, which, though residing entirely in the water, breathe air by means of lungs like the terrestrial mammalia; and are thence obliged to come repeatedly and rapidly to the surface of the water to seek air, however far they may descend into the depths of the ocean. For this purpose they are provided with a cartilaginous tail flattened horizontally, by moving which upward or downward, they descend to, or ascend from the greatest depths with astonishing rapidity. Fishes turn about and move straight-forward rapidly, but they are comparatively slow in changing their depths; and those which lie in deep water at the bottom of the sea, might, if they breathed air, often be suffocated before they could rise to the surface; owing to the vertical position of the tail not being adapted to propel them in a vertical direction. By the direction of the tail being simply changed from the vertical to the horizontal plane, the air-breathing cetacea are adapted to these extra conditions of aquatic life. Like other mammalia, the cetacea suckle their young. The mammae are situated on the breast; and, when the young animal requires to suck, the mother assumes an upright position in the water, elevating her head and shoulders above the surface, and supporting herself in that position by means of her flippers or fore paws.—There are 2 grand distinctions to be made in the structure and the habits of aquatic air-breathing animals of the vertebrate type: 1, those which frequent salt water; 2, those which only seek their food in fresh-water rivers and lakes. The first are fin-footed, as it were; the second are web-footed. The latter partake more of terrestrial than of aquatic habits, form, and structure; the former, more of aquatic than terrestrial. The organization of the fresh-water aquatic animals differs but slightly from that of the ordinary land animals; their extremities are perfectly developed, and the main difference lies in their toes being united by an expanded web, which gives the foot a broad, membranous form convenient for swimming, with considerable freedom of walking and running on land. Of this nature are the extremities of otters, beavers, &c., among mammals; crocodiles, alligators, frogs, and fresh-water tortoises, among reptiles; and of ducks, geese, swans, pelicans, gulls, auks, puffins, &c., among birds. These are all web-footed, and their organs of progression differ but little from those of land animals. Aquatic habits in these animals do not require much adaptation in their structure; but where aquatic life greatly predominates over terrestrial habits, as in

those air-breathing animals which frequent salt water, the organic structure is profoundly modified, and their extremities approximate more in form to the purely aquatic than to the terrestrial type of organism.

AQUATIC PLANTS, or WATER PLANTS, are those vegetable organisms which live either entirely or partially immersed in water, or which require a preponderating quantity of water as the condition of their existence. As there are numerous tribes of aquatic animals in each of the 4 departments or primordial types of the animal kingdom, so there are numerous tribes of aquatic plants in each of the 2 realms of the vegetable kingdom. And moreover, as aquatic animals are more numerous in the lower than the higher types of organism in each of the 4 realms or primordial departments, so aquatic plants are more numerous in the flowerless than in the flowering realms, and in the lower than in the higher types of organism in each department. And here again, in the classification of aquatic plants, as with that of aquatic animals, we find two primary natural distinctions between those which live in or near salt water, and those which live in or near fresh water. Most of the flowerless plants which grow at the bottom of the sea, entirely immersed in salt water, belong to the tribes of *algæ*; and those which live entirely immersed in fresh water, belong also to the flowerless tribes of vegetable organism; and, as nearly all the species of the genus *fucus* and their allies grow in the sea, so are found in fresh water the majority of those flowerless families of plants, formerly classed as the genus *conferva* and its allies. The most conspicuous specimens of fresh-water plants belong, however, to the exogenous and the endogenous tribes of flowering plants; and many tribes belonging to this higher type of vegetable organism, are also found among the plants which, though not inhabiting the sea, require the influence of salt water on the soil in which they grow. Species of the genera *salsola*, *anabasis*, *glauz*, and *salicornia*, will only grow and flourish where they can feel the influence of salt water; and hence they have been called *plantæ salina*. These plants are found not only in the immediate vicinity of the sea, but also wherever salt-springs find their way to the surface of the earth. The *plantæ littorales*, or *maritima*, are always found near the sea, or on the banks of rivers to which the sea has access. Such are species of *vitez*, *chenopodium*, *heliotropium*, *sambolus*, *eryngium*, and *rhizophora*, or mangrove.—Many of the families of plants of the highest organization have near allies which are inhabitants of the water. The *ranunculus aquatilis* belongs to the natural order *ranunculaceæ*. All the species of the natural orders *nymphaeaceæ*, *callitrichaceæ*, *ceratophyllaceæ*, belonging to the class exogens, grow in water; and all the aquatic plants belonging to the natural order *podostemaceæ*, though of a less perfect organization, are classed as exogens. Among the endogens, the orders *butomaceæ*, *naiadaceæ*, or

fluviatiles, *pistaceæ*, *aliemaceæ*, &c., consist entirely of aquatic plants.—In horticulture, aquatic plants are those which naturally grow in deep water, and they are carefully distinguished, by the cultivator, from marsh plants. The management of aquatic plants, when they are hardy, is very simple. They are planted in boxes with holes in the sides, and the boxes are sunk three or four feet below the surface of the water, so as to lie upon or within the mud at the bottom of a pond. Additional precautions are required, however, with those which require the protection of a green-house or the warmth of a stove. Left to themselves, in such situations, they are apt to suffer from a constant uniformity of temperature, which is unfavorable to growth. Natural alternations of stimulation and repose occurring with the natural alternations of the seasons, and the various periods of night and day, are favorable to the healthy vigor and development of plants, while constant heat and stimulation leaves them no alternate times of active growth and rest. Under such perpetual stimulus their natural excitability is overwrought, and they soon droop and die. Proper ventilation, therefore, and due alternations of temperature, are necessary where aquatic plants are cultivated under cover, and by artificial means. The plants requiring special treatment are chiefly those which belong to the water-lily tribe, the most beautiful of which is the *Victoria regia*.

AQUAVIVARIUM, or AQUARIUM, a term applied to certain artificial arrangements for the exhibition of living animals and plants inhabiting either fresh water or salt water. It has long been known that animals living in water may be kept in transparent glass vessels for exhibition, giving them fresh supplies of water daily; but the discoveries of modern chemistry and physiology have pointed out the means of imitating nature so closely in the arrangements necessary for preserving the life of aquatic animals in artificial tanks with transparent walls of glass, that it is now, no longer necessary to renew the water daily in these vessels. As the air is contaminated by the breathing of animals living upon the surface, and its oxygen is combined with the carbon furnished by the organic body, so the air contained in the water is consumed by administering to animal life, and the gaseous product is not only unfit for longer sustaining this, but, unless removed, proves fatal to it. The office of plants is to restore to the atmosphere the oxygen, and absorb the excess of carbon; and it appears that the sub-aqueous vegetation fulfils the same office in preserving the purity of the air in the water, upon which depends the life of the animals it contains. But beside the animals and plants properly proportioned to each other to maintain the uniform composition of the air in the water, it has been found necessary to add certain animals which feed on decomposing vegetable matter, and act as the scavengers in this community. Such are the various species of

the molluscos animals, as the snails, &c. It is also of importance to guard against the preponderance of animal life in these artificial tanks or jars; for although there can hardly be too many plants for the health of the animal, as long as they grow healthily, and do not decompose, yet an excess of animals over plants, in a given space, will disturb the balance, and lead to the destruction of life. *Valisneria spiralis*, various species of *chara*, *anacharis alsinastrium*, *stratiotes aloides*, *callitriche autumnalis*, or *vernalis*, *ranunculus aquatilis*, and *myriophyllum spicatum*, are among the fresh-water plants adapted to this purpose.—Marine plants purify sea water, as fresh water plants purify fresh water. The difficulties of maintaining the balance are, however, greater in sea water artificial tanks, than in fresh water, but by care in selecting sea weeds, avoiding those which are large and throw off much matter from their surface, and not over-crowding the water with animal life, tanks containing marine aquatic animals and plants can be easily managed. Species of *porphyra*, *chondrus crispus*, *iridea edulis*, and the *delesseria*, are recommended.—The greatest experiment of this kind hitherto attempted, is a large glass building, 60 feet by 25, erected in the gardens of the zoological society, Regent's park, London, in 1853. The sides of this parallelogram are bounded by ponds of plate glass, each being about 6 feet in length, 30 inches in depth, and about the same in width. They are raised about 3 feet from the ground, and all that is within can be conveniently seen. These tanks are supplied with gravel, sand, rocks, and sea-weeds, to imitate the rock-pools left on the sea shore by a receding tide. The water in them has not been left entirely to the purifying influence of the plants alone, a certain quantity of water being supplied to the fresh-water tanks every day, while the salt water is gradually drawn off and supplied again by dropping, so as to effect aëration, by means of tubes above the tanks. This is a precautionary measure, to make doubly sure. The fresh-water tanks contain pike, tench, perch, roach, rudd, carp, gudgeon, eel, stickleback, and minnow, with some of the larger forms of fresh-water crustacea, as the crawfish. With these are placed a large variety of the fresh-water mollusca, belonging to the genera *limneus*, *planorbis*, *anodonta*, *unio*, &c.—In the marine tanks, all the classes of the invertebrate animals are represented, as well as the fish among the vertebrata.—In the sea, the mollusca play the same part as in fresh water; they are the scavengers of the ocean. The pinna, the oyster, the pecten, the cockle, amongst bivalves, the whelk, the periwinkle, and many other univalves, are also seen in these tanks. Amongst the articulata, the lobster, the crab, the shrimp, and the prawn, are seen alive in their native element. The success which has attended these experiments in England has encouraged their repetition in this country, and the aquarium is already introduced into public

museums and private houses. To the student of natural history it presents an opportunity for the close observation of the habits of the occupants of the waters, such as is afforded in no other way, while a new source of entertainment is provided in watching, by one's fireside, the movements of animals whose haunts have heretofore been only in the obscure recesses of the oceans, rivers, and ponds. Mr. C. E. Hammett, Jr., of Newport, R. I., has made public his observations and experiments, which appear to have been conducted in the true spirit of a naturalist. He prefers a shallow vessel, not exceeding 8 inches in depth, provided with glass sides, and of a diameter as large as 30 inches. The bottom is covered with an inch of clean sand, and a little gravel is put upon this. Some stones are added, and fresh-water plants are rooted in the sand, or, if salt water is used, marine plants are scattered over the surface. The vessel is then left for a week for the plants to vegetate. To keep down the fungous or mucous growth, fresh-water snails are added, or, to salt water, the buccinum, or sea snail. The fishes, crustaceous and molluscos animals, should be introduced by degrees, with proper regard to maintaining the due balance of vegetable and animal life. Those which appear to thrive best are minnows, stickleback, shrimp, small lobsters, hermit-crabs, eels, and star-fishes. The patella or limpet, the buccinum, purpura or whelk, and several varieties of crepidula, also do well. In fresh-water tanks, the newts, the stickleback, the water-beetles, the tadpoles, and many others, compensate for the loss of the numerous animals that live only in salt water.—The following extract will exhibit the kind of entertainment to be afforded from one of these collections: "No animal in a tank has behaved with more propriety, and been productive of more amusement, than the small species of hermit or soldier crab. They are ever active, and constantly ready to change their shells for their own gratification or that of beholders. They seldom pass each other without disputing the right of way, and yet never injure each other at all. A little incident will show the pleasure that may be found in observing them. While watching my tank, I saw a hermit crab cogitating upon the expediency of vacating his shell for an empty one lying near him. After mature deliberation, he concluded upon the exchange, and suddenly popping his tail into the vacant shell, he crowded out a cloud of particles, probably of decayed animal matter; this attracted the attention of a shoal of minnows, which immediately attacked the poor hermit, endeavoring to draw him from his shell. But a new claimant immediately appeared, in the person of a common crab, which clasped the hermit in his claws, and attempted to carry him off by 'force of arms.' The minnows, unwilling to be thus defrauded, now beset the robber, while the hermit, taking advantage of this diversion, crept quickly away from the scene of

strife, doubtless convinced that there is no place like home."—To obviate the necessity of transporting sea water into the interior, its salts, obtained by evaporation, are prepared at Brighton, in England, and sold, to be used in the proportion of 8 ounces to a gallon of fresh water. The temperature of the aquarium should not fall below 50° F., nor rise above 70°. The mean temperature of the sea is estimated to be about 56°, with a variation of about 12° throughout the year. In hot summer days a screen is necessary against strong sunlight. A work was published in London in 1855, called the "Hand-book of the Marine Aquarium," by Philip H. Gosse, which contains all necessary particulars respecting their preparation and management.

AQUEDUCT (Lat. *aqua*, of water, and *ductus*, a channel), formerly spelled *aqueduct*, as the etymology of the word requires. Though the signification of the term renders it applicable to any channel for the conveyance of water, its use has been very generally limited to structures raised above the surface, upon which water conduits are laid. Hence the name water-works has come to be commonly applied to those aqueducts which are not furnished with such structures—a distinction entirely unwarranted, and which it is better not to recognize, the old word comprehending and being originally used to express all that we mean by the new. It retains its correct signification in New England, but in Pennsylvania we never hear of the Philadelphia aqueduct.—The use of these conveyances for water to supply cities, may be traced back to a very remote period in Persia and in Judea. The "pools of Solomon," near Bethlehem, described by Stephens in his "Incidents of Travel," were 3 large reservoirs connected with each other, from which water was conveyed to Jerusalem, 6 miles distant. One of these pools was 660 feet in length and 280 in breadth. Jerusalem is still supplied with water from them through a 10-inch earthen pipe. The ancient city of Mexico, on this continent, was also supplied with water by the aqueduct of Chapultepec, built by Montezuma, and carried across the lake upon a causeway. But no aqueducts, ancient or modern, equal in length or in expense of labor, those constructed by the Incas of Peru. To irrigate their sterile and sandy soil, they brought water from the reservoirs of the mountains distant several hundred miles. The aqueducts passed along the precipitous sides of the Andes, winding around the terminations of mountains, penetrating some by tunnels worked through the solid rock without iron tools, and crossing the frightful *quebradas*, or chasmas, upon walls of solid masonry. The conduit was constructed of large slabs of freestone, which were closely fitted together without cement. The aqueduct which crossed the valley of Condésuyu, was between 400 and 500 miles long. The works have long since fallen to ruins; but in many places the water still finds its way be-

neath the surface in these artificial channels, and the grass to this day is greener around the spots where it flows out to the surface. In Egypt, similar works were constructed under Sesostria, and in Babylonia under Semiramia. The Romans, however, exceeded all other nations, ancient and modern, in the skill displayed in the construction of these works. A treatise, *De Aqueductibus Urbis Roma*, was written by the consul, Sextus Julius Frontinus, who had the direction of the aqueducts under the emperor Nerva. He refers to no less than 9 different aqueducts. The number of these was afterward increased to 24, some of which had several channels placed one above another, and extending many miles. They were built on a grade of regular descent, winding around the hills, or penetrating them by tunnels, and in the low levels supported on arches, which sometimes, as in the New Anio, extended for 6½ miles in one continued series, many of the arches more than 100 feet in height. The whole length of this aqueduct was 68 miles 700 paces. The Aqua Martia also, which extended 88 miles, contained nearly 7,000 arches. The conduits were constructed in brick or in stone-work laid in cement. The capacity of all the aqueducts was wonderful in proportion to the population. Strabo said that whole rivers flowed through the streets of Rome. It is estimated that 50,000,000 of cubic feet of water must have been supplied daily to a population of 1,000,000, or about 812 imperial gallons to each individual. This is about 10 times the supply from the 8 aqueducts at present in use. The Romans built other aqueducts also in their provinces, some of which exceeded in grandeur those which supplied the capital. That of Metz in Belgic Gaul, is among the most remarkable. There may also be cited the aqueducts of the island of Mitylene, of Antioch, of Segovia in Spain, and of Constantinople.—In the reign of Louis XIV., an aqueduct of vast expense was constructed for supplying Versailles with water. The bridge of Maintenon, built for supporting this aqueduct, is said to be the most magnificent structure of the kind in the world. It is about 4,400 feet, or ⅞ of a mile in length, upward of 200 feet in height, and is constructed of 8 tiers of arches, one upon another, 242 in each tier, and of a span of 50 feet.—The great water-works for supplying Marseilles have been over 20 years in building. The aqueduct is a canal 60 miles long. It passes through several chains of limestone mountains by no less than 45 tunnels, the length of which is 8½ miles; and across a ravine 5 miles from Aix by a structure of masonry 262 feet high and 1,287 feet long. The quantity of water that flows through it is 198,000 gallons per minute. The cost in 1852, some time previous to its completion, had been over \$10,000,000.—In all the ancient aqueducts, for want of strong metallic pipes, it was necessary to construct the water-course upon a very gradual descent, lest by the rush of the water the

structure should be destroyed. This accounts for the very circuitous route followed by many of them, adopted for the purpose of adding to their length, and thus reducing the grade. In modern aqueducts this system is only partially followed, the use of cast-iron pipes admitting of frequent changes in the inclination, and even of the passage of ravines and rivers, by the pipes descending the bank on one side and rising on the other. For convenience, however, of access to the pipes for repairing and cleaning, it is found most advantageous in practice to keep them where they are accessible; and for safety, not to subject them to unnecessary strains, such as would result from the pressure of a high column of water. For these reasons the high viaducts of masonry are not yet abandoned, and the water is still conveyed as near a level as may be. For large aqueducts, stone channels, like those made by the Romans, have the advantage over iron pipes of greater capacity and durability.—Of recent aqueducts, those of Lisbon, New York, and Boston, are particularly worthy of notice. The first, completed in 1788, is about 8 leagues in length, and in some parts of its course has been excavated through hills; but near the city it is carried over a deep valley for a length of 2,400 feet, by several bold arches, the largest of which has a height of 250 feet, and a span of 115 feet.—The Croton aqueduct of New York surpasses all modern constructions of this kind in extent and magnificence. It was completed in 1842, having been 5 years in building under the superintendence of Mr. John B. Jervis, chief engineer. The whole expense, including \$1,800,000 for distributing pipes, and amounts paid for right of way, and other incidental charges, was \$10,875,000. Including commissions and interest, the whole cost has been \$12,500,000. The whole length, from its source at Croton river to the distributing reservoir on 5th avenue and 40th street, is $40\frac{1}{2}$ miles. A dam constructed across the river, raised the water 40 feet, and formed the Croton lake, which covers about 400 acres. This is the collecting reservoir, and contains with a depth of 6 feet of water, 500,000,000 gallons. The flow of the Croton is about 27,000,000 gallons daily at its lowest stages. Should so large an amount of water as 85,000,000 gallons ever be required, the reservoir could furnish in a dry time 8,000,000 gallons daily for 62½ days, which is as long as any period of drought is likely to be. This supply of 85,000,000 gallons may therefore be depended upon; and if more should ever be required, it can be obtained by constructing other reservoirs further up the stream. From the dam to the Harlem river, nearly 33 miles, the aqueduct is built of stone, brick, and cement, arched over and under, 6 feet 9 inches wide at the bottom (this being the chord of an arc, the versed sine of which is 9 inches), 7 feet 5 inches at the springing line of the arch, and 8 feet $5\frac{1}{2}$ inches high; area of cross section, 53½ square feet.

Its capacity is equal to 60,000,000 gallons daily. The inclination is 1.1088 feet per mile, or 33.93 feet in the 33 miles. The velocity of the water is $1\frac{1}{2}$ mile an hour. Across Harlem river, the aqueduct is carried upon the High bridge in 2 iron pipes of 8 feet diameter, which are laid $12\frac{1}{2}$ feet lower than the bottom of the conduit on the north side of the river, and 10 below the aqueduct on the south side. While the bridge was building, the water was conveyed in a 3-foot iron pipe, down one bank of the river and up the other, and the original intention was to have had this for the permanent plan. Objections being raised that the pipe would obstruct the navigation of the river, and such restrictions being imposed by the state legislature as to its use, it was finally decided to build the bridge with arches 80 feet wide and openings 100 feet high, to admit the passage of vessels; the bridge, as now completed, is 1,460 feet long, with 8 arches in the river of the required span, and 7 others on the banks of 50 feet span. The whole height of the bridge above high water mark is 114 feet.—Had the aqueduct been carried across the bridge its full size, the loss of 2 feet head might have been avoided; and a further unnecessary loss of 3 feet head is incurred in the inverted siphon across the Manhattan valley, from the High bridge to the receiving reservoir. In this distance of 4,105 feet, the water was carried in 2 pipes of 8 feet diameter, to which a 4-foot pipe has since been added. They descend in this valley 109 feet, and rise within 8 feet of their level at the north side of the valley.—The receiving reservoir covers an area of over 35 acres, being 1,826 feet long and 836 feet wide, and is capable of containing 150,000,000 gallons of water. From this reservoir to the distributing reservoir, a distance of $2\frac{1}{2}$ miles, the water is conveyed in 8 lines of iron pipes of 3 feet diameter, and one line of 30 inches diameter. The capacity of this reservoir is 20,000,000 gallons. It is a stone structure 45 feet high above the streets, and 425 feet square at the top, covering a little more than four acres. The water for supplying the city is taken from this reservoir and conveyed through more than 134 miles of pipe, the mains being 3 feet diameter, and the smallest pipes 4 inches. The annual interest on the cost of this work is \$665,000; this is raised by a water tax and some other taxes, while by means of a sinking fund the capital will be gradually redeemed. For a house of average size, the tax is \$10 per annum. Manufactories, hotels, stables, distilleries, ships, &c., pay according to the quantity of water used.—The aqueduct in construction, for furnishing water to the cities of Brooklyn and Williamsburg, under the direction of J. P. Kirkwood, Esq., chief engineer, receives its supplies from the outlets of several ponds and springs, the waters of which it intercepts in the short interval between their sources and their discharge into the ocean on the south side of Long Island. The water is taken from these

streams at a level of 8 to 10 feet only above high-water mark. The ponds above are at various levels and of various sizes. The one upon which dependence is placed for the largest supply of water, though inferior in size to some others, is Cornell's Pond on Parsonage creek. It covers an area of 87 acres. The number and size of these sources is so great, that no doubts are entertained as to abundant supplies being furnished, particularly as the aqueduct may be at any time extended to reach more of the same kind of streams. The most distant one from the receiving reservoir is 13 miles, and the nearest 5 miles. From the former the water is intended to be conveyed in an open canal, descending 2 inches per mile, and extending $7\frac{1}{2}$ miles; where it is then received in a covered conduit 10 feet wide at the springing line of the arch, and 8 feet 8 inches high in the clear. The descent of this is 6 inches to the mile. It is 5 miles in length, and terminates within 8,500 feet of the Ridgewood reservoir, at a level 167 feet below. The connection between the conduit and reservoir will be by 2 lines of heavy pipe of 8 feet bore—the water to be pumped up by 2 large engines, each capable of delivering 10,000,000 N. Y. gallons in 16 hours. The conduit and canal are of sufficient size to deliver 40,000,000 gallons in 24 hours; but the supply at present arranged for contemplates a daily delivery of 20,000,000 only. The Ridgewood reservoir is excavated in the sand and gravel at the summit of a hill 6 miles distant from the City Hall at Brooklyn, and is of sufficient size to contain 170,000,000 gallons. From the reservoir, 120 miles of pipe of all sizes will be laid for distributing the water, divided as follows: 5 miles each of 36 and 30-inch diameter; 4 of 20-inch; 12 of 12-inch; 30 of 8-inch; and 64 of 6-inch diameter. An open canal is a very objectionable feature in an aqueduct intended to supply water for domestic purposes, particularly when of so gentle descent as in this instance. Considerations of economy, however, have prevailed over the objections of the engineer, though at some future time the covered conduit may be extended to take the place of the canal. Vegetable and animal matters must accumulate along the banks of a canal of so slow a current as this will be, and the water be impregnated with carbonic acid gas derived from their decomposition. This will make the use of lead pipe, as service-pipe, dangerous to the health of consumers, though its ill effects may not soon be perceived, or, when felt, be attributed to their real cause.—Jersey City is supplied with water by an aqueduct of about 8 miles in length, from the Passaic river at Belleville. Its construction was commenced in 1852, under the direction of Wm. S. Whitwell, chief engineer, and in Aug. 1854, the water was regularly distributed throughout the city. From the river the water is conveyed by an inlet-conduit, the bottom of which is 4 feet below ordinary low water of the river. This extends about 875 feet, termi-

nating in a large pump well, the bottom of which is on the red sandstone. The size of the brick arched conduit is $7\frac{1}{2}$ feet wide at bottom, $8\frac{1}{2}$ at the springing line of the arch, and extreme internal height 8 feet 9 inches. The engine-house over the pump-well is built for 2 Cornish engines, with steam cylinders of 80 inches diameter, and a stroke of 11 feet, each intended to work a pump of the same length of stroke, and a plunger of $34\frac{1}{2}$ inches diameter. Only one of these engines is yet provided, and this furnishes more than double the power required, working only 5 strokes per minute. The rising main from the engine house to the receiving reservoir on Belleville ridge, is 8 feet diameter and 2,805 feet in length, discharging at the top water line, 157 feet above ordinary high water of the river. The capacity of this reservoir is 10,884,229 imperial gallons. Two iron pipes, one of 20 and one of 36-inch diameter, are intended to convey the water to the distributing reservoir on Bergen Hill, nearly 6 miles distant. The smaller one is laid, and is at present sufficient. The greater part of the way across the Hackensack marshes, the pipe is laid upon the surface raised above its general level, and covered by an embankment of earth, a double flooring of 2-inch plank being placed beneath the pipe. The difference of level between the reservoirs is 25 feet. The delivery of the 20-inch pipe will then be a little more than 2,000,000 imperial gallons in 24 hours. The capacity of the distributing reservoir on Bergen Hill, 2 miles from Jersey city ferry, is about 45,000,000 imperial gallons. Its top water line is 128 feet above the ordinary level of high tide. The largest distributing pipes are of 26-inch diameter; but of 19 miles laid, about 12 miles are of 6-inch pipe, and more than 2 miles of 12-inch pipe. The water proves, after resting in the reservoirs, to be of excellent quality, and the supply is inexhaustible. The works, estimated at first to cost \$600,000, were actually in operation with an expenditure of \$594,885.78, though several additions were made to the original plan. Two years afterward, on July 1, 1856, they had been extended and improved, and the whole outlay was then \$640,828.04.—The city of Boston is supplied with water from Lake Cochituate, formerly known as Long Pond, in Framingham and Natick, distant from the fountain on Boston Common $19\frac{1}{2}$ miles, and from the reservoir at East Boston, $23\frac{1}{2}$ miles. The work of constructing the aqueduct was commenced Aug. 20, 1846, under the direction of E. S. Chesbrough and Wm. S. Whitwell, engineers, after the subject had been under consideration for about 18 years, and explorations had been made of every point that might furnish the required supply. On Oct. 25, 1848, the water was first admitted into the public fountains, and a great celebration was held on this occasion. The source comprehends a water area of 684 acres, the greatest depth being 70 feet; at a stage of water lower by $6\frac{1}{2}$ feet than this, the area is 504 acres. The water-

shed that feeds this source, is an area of 11,400 acres. The minimum fall of rain at Boston for a series of 27 years, has been found to be 29.98 inches; and the discharge from the outlet of the lake, estimated for 2 years, shows that more than $\frac{1}{4}$ of the fall of rain passes out from the lake, furnishing a supply of 10,176,570 wine-gallons. The quantity calculated upon as necessary to be provided, was 7,250,000 gallons, which would give to a future population of 250,000 inhabitants, $28\frac{1}{2}$ gallons a day each person. Additional rights were however secured, which might hereafter be applied to increase this supply; and the waters of Jamaica Pond, in Roxbury, are also secured to the city, and may be used independently of the Cochituate supply by the 10-inch pipe laid to the city in the year 1840. The capacity of this pond varies, with the stage of the water, from 28,000,000 gallons to 4 times this quantity. The elevation is 50 feet above tide-water. At Cochituate lake, a dam was constructed of granite at the outlet, and, in this, a flume, designed to hold the water, 8 feet deep, the bottom of which is 124.86 feet above tide marsh level. The bottom of the aqueduct, commencing in the lake under a gate-house of hammered granite, is 3 feet 4 inches below the bottom of the flume, and 8 feet 10 inches below the assumed low water-line of the lake. From the lake to the receiving reservoir in Brookline, about 14.5 miles, the aqueduct, for the greater part of the way, is a conduit of brick masonry. Over the valley of Charles river is a line of iron mains, and in Newton and Brookline are 2 tunnel excavations. The brick conduit winds, by irregular curves, along the country, where it is of such elevation as admits of the work being mostly beneath the natural surface. The brick-work is 8 inches thick, laid in hydraulic cement, the section of the conduit being that of an egg, the largest end down, the greatest width 5 feet, and the extreme internal height 6 feet 4 inches. This aqueduct is everywhere covered by at least 4 feet of earth, and nowhere admits of a passage under it except by the culverts, at the crossing of Charles river, which it passes by 2 80-inch iron pipes, and at a bridge over a valley in Needham. The iron pipes cross the river upon a stone bridge, at a level 58 feet below the aqueduct on each side, and 71 feet above the lowest stage of the water in the river. The whole length of each of the pipes is 979 feet, the distance, in a straight line between its two termini, 956 feet. The tunnels are in porphyritic rock of great hardness, one, 2,410, and the other 1,150 feet long. In excavating these tunnels, the influx of water was so great, that 7 steam engines were kept constantly pumping during their construction. Four waste weirs are provided for letting off the water and for ventilation. They answer the latter purpose so well, that but one ventilating shaft has been put up on the line. The descent or fall is 3.81 feet in the brick aqueduct, which is 14.446 miles long. In the pipe section, 956 feet long, it is 0.45 feet;

total, 4.26 feet in 14.627 miles. With this descent and a depth of 3 feet 10 inches, the aqueduct is found to be sufficient to convey more than 10,000,000 gallons in 24 hours, a capacity considerably greater than was originally estimated with that depth. The receiving basin at Brookline is a natural depression in the surface improved and perfected, covering about 23 acres with a maximum depth of 24 feet of water, and least depth 14 feet. Its greatest capacity is 119,583,960 wine-gallons—its bottom, 100.6 feet above tide marsh level. Two iron mains, one of 36 and the other of 80 inches diameter, convey the water to Dover street in the city, a distance of about $3\frac{1}{2}$ miles, where the larger is reduced to the size of the smaller, and the two pass, together with an attendant smaller pipe connected with them, through the city, supplying the different portions and the distributing reservoirs. The length of all the pipe employed, down to the size of 4 inches diameter, is $112\frac{1}{2}$ miles. The distributing reservoirs are on Beacon hill, at south Boston, and another at east Boston. To the last two, the water is conveyed in pipes sunk beneath the water at the draws of the bridges—these reservoirs regulate the delivery by accumulating the water during the night. The Beacon hill reservoir, back of the state house, is a solid structure of granite, of the capacity of 2,678,961 gallons, its bottom, 108.03 feet above tide marsh level, and the top of the coping outside, 134.09 feet. The South Boston reservoir, excavated on Telegraph hill, contains 7,508,246 gallons: its bottom, 105.35 feet elevation above tide, and the top of the dam, 125.86 feet. The east Boston reservoir, filled within 3 feet of its top, contains 5,591,816 gallons. Its bottom is 80.6 feet above tide marsh level, the top of the dam, 110.6 feet. Ten public fountains are built in different parts of the city, and supplied by the Cochituate aqueduct. The whole cost of the water-works up to January, 1853, after the deduction of \$513,069.48 received for water rents, was \$5,370,818. The amount of water rates paid in the year 1852, was \$177,012.41—and the estimated amount for the succeeding year was \$190,000. The supply of water has proved to be greater than was calculated upon; but the consumption increased in a much greater ratio, amounting in 1852 to more than 8,000,000 gallons daily, for the supply of a population of 140,000. This waste of water threatened to be of so serious consequence, that decided measures were required to check it.—Franklin, it is said, first suggested the importance of furnishing to the city of Philadelphia copious supplies of water in 1768 or 1764, after the visitation of the yellow fever, and in his will, dated June 23, 1789, recommended an appropriation by the city, to be expended at some future time, in constructing an aqueduct to bring in the waters of the Wissahiccon creek. In 1797, public petitions were first presented upon the subject, and the next year a survey was made by Mr. B. H. Latrobe of several streams in the vicinity

of the city, and a plan proposed of using the water of Spring Mill creek, 12 miles distant, and another, which was adopted, of pumping the Schuylkill river-water by steam-power, and collecting it in tanks for distribution. One engine was placed near the river, at the N. W. corner of Schuylkill-Front and Chestnut streets, from which the water was conveyed in a brick aqueduct of 6 feet diameter and 3,144 feet long, to the Centre Square engine house. This was at the crossing of Broad and Market streets; and another engine here pumped the water into 2 wooden tanks, set in the top of the building 50 feet above the bottom of the brick tunnel. One of the tanks was 10 feet, and the other 14 feet, diameter—their depth, 12 feet—capacity of both was 17,094 ale-gallons. The engine could not fill them in less than 25 minutes, and they were exhausted in about the same time by the wooden logs, of 6-inch and 4½-inch bore, which conveyed the water from them through the city. Great difficulties were encountered in procuring the steam-engines and pumps; for at this time there were only 3, of any considerable power, in the United States—one imported in 1763, for the Schuylker copper mine at Belleville, one at a saw-mill in New York, and a small one of Oliver Evans, in Philadelphia, used for grinding plaster. The greater part of the machinery was of wood, as the lever beams, fly-wheels, shafts, arms, pumps, cisterns, and even the boilers. These were boxes of 5-inch white pine plank, 9 feet wide, 9 feet high, and 15 feet long, securely bolted and braced. Inside of each of these was the fire box of wrought-iron, with vertical flues of cast-iron. Boiler-plate iron was then unknown; the largest sheets of wrought-iron were 3 feet long and 15 inches wide, of rough shapes, which the purchaser was obliged to cut to suit his purposes. The steam cylinder of the Centre square engine was cast in two pieces, united by copper, the joints secured by a cast-iron band 18 inches wide. Though the cylinder was only 36 inches diameter and 6 feet 6 inches long, nearly 4 months were spent in boring it. The pumps were double-acting force-pumps, lined with sheet copper to make them tight. The works commenced supplying the city on Jan. 27, 1801. They had cost, in the year 1803, \$295,452; in 1811, \$508,511; when more efficient works were called for. Frederick Graff, and John Davis, after surveying the different resources, recommended the steam-works at Fairmount, then called Simes's hill. These were commenced in 1812, and completed in Sept. 1815. Water-power was considered very uncertain, on account of ice and freshets. A Bolton and Watt steam-engine was obtained, of 44-inch cylinder and 6 feet stroke, working a vertical double-acting pump of 20 inches diameter and 6 feet stroke, and pumped 1,733,632 ale-gallons in 24 hours into the reservoir constructed on Fairmount, 102 feet above low water in the Schuylkill. In Dec. 1817, a high-pressure engine of Oliver Evans, was added, and the cost of raising

2,300,000 ale-gallons per 24 hours was \$84.50. The reservoir contained 8,266,126 gallons, and the water was conveyed from it to the Centre square distributing chest by 6 lines of logs—5 of 6 inches, and 1 of 4½ inches, diameter. In 1819, it was determined, from the great expense attending the steam-engines, to substitute water-power, and build a dam across the river, which should furnish this power and complete, at the same time, the work required to render the river navigable. The dam was built at the expense of \$150,000, and completed in 1821. At this time, the first large iron mains were laid from the reservoir to the city. They were of 22 inches in diameter, and imported from England. In 1820, the first iron pipes of this size made in this country, were cast for the aqueduct by Mr. S. Richards of Philadelphia. The first water-wheel was started to supply water Oct. 25, 1822, and the steam-works were given up in January succeeding. As the demand for water increased new wheels were added in after years; the first 3, though made of wood, continuing in constant use for 24 years, when they were taken down in 1846, and replaced with new wheels of iron. The whole number of breast-wheels is 8, constructed of cast-iron with buckets of wood. Four are 18 feet diameter and 15 feet wide; one, 15 feet diameter and 15 feet wide; and 3, 16 feet diameter and 15 feet wide. At low tide, the fall is 7 feet 6 inches. From 4 to 6 hours every day, the rise of tide prevents their use. The pumps are 8 in number, double-acting, and of 16 inches in diameter. The one driven by the small wheel has a stroke of 4½ feet, and makes 14 full strokes per minute. The 16 feet wheels drive their pumps 13 strokes, of 5 feet, and the 18 feet wheels 11 strokes of 6 feet, per minute. In December, 1851, a Jonval turbine wheel was added, with a pump of the largest dimensions given, and running 12 strokes. It is not affected by the back water of the tide or freshets; and if all the breast wheels were replaced by turbines, the supply of water would be increased from 4½ to 6 million gallons daily. The mains ascending to the reservoirs from the pumps are all 16-inch pipes; the shortest 188 feet long, the longest 433 feet—the vertical lift being about 96 feet. In 1852, all the expense of running the 9 wheels and pumps was \$7.67 per day; or \$1.33 per million gallons raised. The reservoirs upon Fairmount were added to as the works were increased. In 1829, after 8 reservoirs had been completed there, the Centre square works were given up: in 1836, a fourth reservoir was constructed on Fairmount, quite covering the hill, and making the whole capacity 22,031,976 ale-gallons, and total cost \$133,822. Their greatest depth, the same in all, is 12 feet 8 inches. Three mains carry the water from Fairmount—one of 22 inches, commenced in 1819, is 2,661 feet long, and then, being reduced to 20 inches, continues of this size 9,516 feet farther; one of 20 inches, laid in 1829, is 10,596 feet long; and the 3d, of 30 inches, laid in 1850, is 13,821 feet long.

Bologna, and Pisa. One of the curiosities of this last city is the altar in the church of St. Catharine, at which St. Thomas was wont to officiate. Though he steadfastly refused all episcopal dignities, and was glad to be discharged even from the honor of the teacher's place, he was always ready to work for his order in its assemblies, and for the church in her councils. On one occasion he journeyed to London to attend the 40th general chapter of the Dominicans; and he was on his way to the council of Lyons, to sustain the cause of the Latin against the Greek church, when he was seized with his fatal sickness. He died March 7, 1274, at the Cistercian abbey of Fossa Nuova, on the Pontine marshes, after a painful illness of a month, which he bore with the most exemplary patience. Less than 50 years afterward, in 1323, he was canonized, and the day of his death appointed as the day of his festival. He is ranked with the 4 great doctors of the Western church. The works of St. Thomas have always had high authority, and large use is still made of them in the system of Catholic theological study. They form 17, 19, and even 20 folio volumes, in the various editions which have been published in successive centuries, from 1490 to 1745. The 8 volumes of the *Summa Theologia*, incomplete as they are, may be regarded as the most finished compend of scholastic divinity. The elaborate comments on the 4 books of Peter Lombard, the "Master of Sentences," are even more remarkable for their subtlety of reasoning, their minute distinctions, and their amazing refinements of thought. While their theology is substantially that of Augustine and Anselm, their style and method is that of the heathen Aristotle; whom, it was quaintly said, St. Thomas rescued from atheism, and secured for orthodoxy. For the philosophy of the Stagirite, St. Thomas had a reverence second only to his reverence for the fathers and the evangelists. He studied the logic of Aristotle along with his Bible in the tower of Rocca Secca, and found in its suggestions a treasury of argument which he afterward could use in defence of the faith. His own knowledge of the great philosopher was gained from an inferior Latin translation, and some have asserted that he was unable to read the original Greek. Yet the Dominicans maintain that one of their brotherhood executed a new and exact translation of Aristotle under the eye of Aquinas. The Latin style of the "Angelic Doctor" (for by this title is St. Thomas known among the mediæval writers) is less pure than that of some other of the standard scholastic doctors. It fatigues by excessive tenuity, by divisions and subdivisions, which confuse the reader in their attempt to make the topic clearer before him. St. Thomas was not a mystic, nor a follower of the Alexandrine school in its critical renderings, yet his speculations have the effect of mysticism upon the mind, and his criticisms try one's patience like the long-drawn allegories of Origen. The contro-

versial temper of his writings is nearly lost in the ingenuity and copiousness of his dialectics, and the cloud in which the thunderbolts lie, hides their force and sharpness. In his own age, no eminent doctor had the inclination to dispute with him, although the rivalry between the followers of St. Francis and St. Dominic, which was developed in subsequent ages, had already begun to show itself. It was reserved for Scotus, in the next century, to give name to an antagonist school, which should divide the suffrages of the Catholic world, and question the orthodoxy of several of the positions taken by the champion of Aristotle, both in theoretical and practical divinity. After long centuries of strife, the most important point of difference has by a recent decree of the church been decided in favor of the Scotists, and the view of the Thomists in regard to the immaculate conception of the Virgin has been finally overruled. As a preacher, St. Thomas was graceful, eloquent, and effective. His manner was calm, his presence commanding, his words measured and free from bitterness. He was never unduly excited, and preferred to bear, instead of rebuking, the hasty speech of adversaries. Curious anecdotes are recorded of his presence of mind in time of danger, and his absence of mind in secular affairs and ceremonies. He could move a congregation to tears as easily as he could refute the cavils of skeptics. He loved to argue with unbelievers, and his conference with Jews ended more than once in their conversion. His abstruse studies did not hinder his zeal in devotion, and he was wont to say that he learned more at the foot of the cross than from all his books. He was celebrated as a model of piety quite as much as a marvel of genius, and his claim to sainthood rests on truer foundations than his restoration of a heathen philosopher or his acute scholastic pleadings. He was from first to last a submissive son of the church, and had none of the combative and rebellious spirit of the restless Abelard. He asked no recompense for his labors but the approval of the church and the consolation of the spirit. Many cities have contended for his relics, and the fame of his sanctity is the highest boast of that religious order of which he was a brother.

AQUINO, a town and see of Naples in the province of Terra de Lavarò. It was the birthplace of Juvenal, and, according to some, of Thomas Aquinas. Population, 1,100.

AQUITANIA, a country of Gaul, situated between the Garonne and the Pyrenees. It was the smallest of the three divisions of Gaul, and Augustus, in order to equalize it in some measure with the other two, extended its frontier to the Loire. The language, institutions, and physical conformation of the Aquitani, were quite different from those of the other inhabitants of Gallia, and proclaimed their affinity with the Iberian tribes of the Spanish peninsula.

ARABELLA STUART, commonly called the Lady Arabella, was the daughter of Charles

Stuart, earl of Lennox, the brother of Darnley, husband of Mary Queen of Scots, and Elizabeth Cavendish, daughter of the Countess of Shrewsbury, commonly called "Old Bess of Hardwick." She was born about 1577, died Sept. 27, 1615. Her parents both died early. Queen Elizabeth of England viewed her with suspicion as a claimant to the throne, who was likely to be used as an instrument by the Catholic party. Constant watch was kept over her during the life of Elizabeth. James I., on his accession to the English throne, regarded her with no more favorable eye than Elizabeth had done. The conspiracy of which Raleigh was accused, for putting her on the throne in place of James, only aggravated her position. James would not assent to any proposals of marriage for her. At last she contracted a secret marriage with Sir William Seymour, 2d son of Lord Beauchamp. She and her husband were arrested and imprisoned separately. They both escaped from their confinement. Sir William Seymour got away safely to Flanders. Lady Arabella Stuart was captured by a royal ship on her way to France, and was reconducted to the tower. Her tender and loving heart broke under her disappointments, her intellect gradually gave way, and she died a maniac in the tower after 4 years' confinement. Sir William Seymour remained many years a voluntary exile; and though he afterward married again, preserved his affection unaltered for his unhappy lady, and named his daughter Arabella Stuart in honor of her. Few acts of King James were more cruel than his treatment of his unfortunate ward.

ARABESQUE, a style of ornament consisting of infinitely varied combinations of straight and curved lines, very much used by the Arabs, or rather the Moors, of Spain, and deriving its name from them. The Koran forbids to all true believers the representation of any animal, and Mohammedan tradition makes the punishment of those who break this law to consist in being haunted by the forms of those animals whose outward shapes they may have ventured to depict, demanding of them to create souls for them as well as bodies. It is true that the rude figures of the lions that uphold the great basin of the fountain in the celebrated Court of Lions, in the Alhambra, and some other rude specimens of painting and of sculpture, are quoted in contradiction of the existence of any such law, or, as a proof, that it was not at all regarded. These sculptured or painted animals are, however, so very few in number, and so poorly executed, when compared with even the roughest and poorest of the arabesques that surround them, that they afford, on the contrary, the strongest proof of the existence and observance of the religious prohibition above referred to; and are easily explained as the work of Christian laborers, or as monuments of the power of some absolute ruler who sought to show himself above all fear in this world, or in the next. A part of the orna-

ments called arabesque may be traced to the Assyrians and Egyptians, especially in the designs of borders; and came from them to the Greeks. Specimens of them may also be found on the remains of Roman buildings, as, for instance, on the ceilings of those subterranean chambers on the Palatine Hill, called the Baths of Livia; but the most beautiful specimens, without doubt, are to be found in the far-famed palace of the Alhambra, once the home of the polished, courteous, and gallant Moor. Though the colors have faded somewhat from the effects of time, the eye still wanders with delight among their mazy beauties, gliding over graceful curves, infinite in their variety, and ever charming from the harmonious contrasts of bright colors, whose opposing brilliancies, to a certain extent, neutralize each other, and make even the bright gold that borders or winds among them seem merely a necessary adjunct to the richness of the whole. To those who cannot see the originals, the work of Owen Jones is an excellent substitute. After feasting his eyes upon the wonderful beauty of these rich mazes, it may interest the philosophical inquirer to observe from how few and simple elements they arise. If a series of straight lines be drawn equidistant and parallel to each other, crossed by a similar series at right angles, so as to form squares, and the spaces thus given be intersected diagonally in each alternate square, the figures here shown, and every other possible combination, will be given by the lines. The same figures and the same variety may equally be produced where the lines are equidistant diagonally; there is, in fact, no possible limit to the invention of designs of this description; by different combinations of lines and colors they may be multiplied with the greatest facility. The same style of design may be shown not only on surfaces, but in the forms of solids. Thus, in the Alhambra, "the ceiling of the *Sala de la Barca*, a wagon-headed dome of wood of most elaborate patterns, receives its support at each end from pendentives abutting against the great arches." These pendentives are of a very curious mathematical construction. They are composed of numerous prisms of plaster, united by their contiguous lateral surfaces, consisting of seven different forms, proceeding from three primary figures. These are the right-angled triangle, the rectangle, and the isosceles triangle. The curves of the several pieces are similar, so that a piece may be combined with any one of the others by either of its sides; thus rendering them susceptible of combinations as various as the melodies which may be produced from the 7 notes of the musical scale. Such is the wonderful power and effect obtained by the repetition of the most simple elements.

ARABGHEER, ARABGIX or ARABKIR, a town of Asiatic Turkey, near the Euphrates, 135 miles S. S. W. of Trebizond. It is surrounded by numerous fruit trees, situated on a plateau.

It employs 1,000 looms in weaving cotton fabrics from English yarn. The white mulberry is abundant. The climate is severe.

ARABIA, called by the Arabs themselves *Jazīret-el-Arab*, "the island or peninsula of the Arabs," an extensive peninsula forming the S. W. extremity of Asia, though, in physical characteristics, bearing more affinity to Africa.—It is bounded on the north by Asiatic Turkey and the Euphrates; east by the Chaldean mountains, the Persian gulf, and the gulf of Oman; south by the Indian ocean and the straits of Bab-el-Mandeb; and on the west by the Red sea and the gulf and isthmus of Suez, the latter of which connects it with Egypt. The northern boundary is very imperfectly defined, hardly any two geographers agreeing in regard to it. This is owing mainly to the fact, that the southern desert of Syria, and the Irak-Arabi, are parts of the same vast arid plain, without any distinct landmarks. Burckhardt's boundary is perhaps as acceptable as any; he represents it as a line extending from the Mediterranean, near El Arish, along the southern border of Palestine and the Dead sea, thence winding across the Syrian desert to Palmyra, and thence crossing in a straight line to the Euphrates at Anah.—Adopting this boundary, Arabia lies between $12^{\circ} 40'$ and 34° N. lat., and between $32^{\circ} 10'$ and $59^{\circ} 40'$ E. long. Its greatest length from Suez to Ras-al-Had, on the gulf of Oman, is 1,860 miles. From the straits of Bab-el-Mandeb to the Euphrates is about 1,400 miles. Its superficial area may be estimated at something more than 1,000,000 sq. miles.—The ancient geographers divided Arabia into 8 portions, *Arabia Felix*, or the Happy, *A. Petraea*, or the Rocky, and *A. Deserta*, or the Desert. These divisions are, however, unknown to the inhabitants. The modern native divisions are: I. The Bahr-el-Tour-Sinai, or Sinaitic peninsula of Petermann, the El Hadjr of Von Hammer, comprising the small peninsula between the Mediterranean and the 2 northern arms of the Red sea, and corresponding very nearly with the Arabia Petraea of Ptolemy. II. Hejaz, or "the land of Pilgrimage," lies south of the above, extends along the Red sea to the parallel of 19° , and is bounded easterly by the great central desert. This division contains the 2 holy cities, Mecca and Medina, as well as their ports Jeddah and Yembo. The pasha of Egypt is nominally the ruler of this region; but the Beled-el-Haram, or holy land proper, including the 2 sacred cities, is under the peculiar jurisdiction of the Sherif of Mecca. The Howeitat Arabs, a fierce and dangerous tribe, control the coast from the 25th parallel northward. III. Yemen occupies the remainder of the Red sea coast from the 19th parallel to the straits of Bab-el-Mandeb, and extends easterly to the district of Hadramaut. It comprises the finest and most fertile part of Arabia. The stronghold and port of Aden, an Asiatic Gibraltar, now belonging to Great Britain, is in this district.

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IV. Hadramaut forms the great southern division of Arabia. It extends along the Indian ocean from long. 45° to $56^{\circ} 80'$, and stretches far into the interior. Little is known of it except a narrow strip along its coast. V. Oman occupies the tract lying between the Persian gulf and the Indian ocean, having for its western boundaries the district of Hadramaut, and the great central desert. It is divided among several petty chiefs, the most enlightened and powerful of whom is the imam of Muscat, whose efforts to extend the commerce of his country with foreign nations, have given him considerable reputation. He claims the greater part of the sea-coast. VI. El Aohsa, or Hadjar, extends along the western coast of the Persian gulf between Oman and Irak-Arabi, and the Euphrates. Its western or inland boundary is a mountain range which separates it from the central desert. VII. Nedjed, or Nejd, is the central and largest of the divisions of Arabia, but very little is known concerning it. It is inhabited by wandering tribes, whose wealth consists mainly in their camels and horses, and who journey from one oasis of this arid desert to another, seldom remaining long in one locality. They are mostly Wahabites, or, as they call themselves, Wahabees. The southern portion of this district is said to be a vast sand plain utterly uninhabitable. It is called by the Arabs, *Roba-el-Kholy*, "the abode of emptiness." VIII. El Hamad, or the Syro-Arabian desert, extends from Nedjed northward to Palestine and the Euphrates. It is mostly in the hands of the Aneizah Arabs, over whom the Persians profess to exercise some control, by means of sheiks or chiefs stationed at Bagdad. The Baron von Hammer, an eminent German orientalist, adds to these 2 other divisions, viz.: Es Shehr, or Mahra, east of Hadramaut, a dreary region but containing some well-cultivated and well-inhabited districts, and occupied by a people whose language differs materially from the modern Arabic; and El Yemamah, the S. E. portion of El Nedjed, bordering on El Hadjar, Oman, and the great desert of Ahkaf.—The entire coast of Arabia from Suez around to the Persian gulf, is bordered by a belt of level, sandy, but generally fertile ground, from 1 to 50 miles breadth, designated by the natives the Tehama or low land. Beyond this is an arid sandy desert, rising toward the centre of the country into an elevated table-land, which declines toward the north into the lower level of the Syro-Arabian desert. This desert tract is intersected by some mountain chains of considerable height, and has scattered over its surface fertile oases, or wadia, narrow valleys, where the presence of springs, or permanent streams, has clothed the earth with fertility and beauty. The Sinaitic peninsula is traversed by spurs from the Mount Lebanon range. Mt. Seir and Mt. Tor, the Sinai and Horeb of the Scriptures, are its principal summits. The high table-lands of the interior, which approach within from 5 to 50 miles of the coast, through-

out its whole extent, are traversed by several chains of mountains; of these, the Jebel Shammar, running east and west, are the loftest and most extensive; considerable portions of these are covered with forests. The Jebel Kur run parallel with the Jebel Shammar, but are of less altitude. The Torik mountains run north and south, and cross the eastern part of the plateau. These chains are all of the primary formation. The mountains of El Arad, composed of limestone rocks, run from N. E. to S. W. through the Nedjed, and terminate at Ras Reccan on the Persian gulf. The coasts of Arabia are, to a very considerable extent, lined with coral, and are, in many places, precipitous; the Tehama bears evidence of being an alluvial or diluvial deposit, and as the shore is still gradually rising, the limits of the Tehama are slowly increasing. Of the many islands which border the coast, the Bahrein isles, in the Persian gulf, and Socotra, in the Indian ocean, are the only important ones.—Arabia has no considerable river. Its streams taking their rise in the mountains lose themselves for the most part in the sands, or form deep ravines, called by the natives *wadis*, which only discharge into the sea or ocean when swollen by the rains. Of these, the Obur, the Sehan, the Abbacy, the Zebid, and the Kebir, flow into the Red sea; the Meitam, the Chabb, the Prino, and the Masora, into the Indian ocean. Several of these are said by recent geographers to pursue a subterraneous course, for which the dense clay, which underlies the sand, and the cavernous limestone afford facilities, and to discharge into the sea, at some distance from the shore. A recent German traveller relates that, at certain points near the coast, the sailors would spring overboard with their goatskins, and diving down, would bring up fresh water from springs below the surface of the sea. As none of the mountains of Arabia reach the limit of perpetual snow, there is nothing to feed the rivers, and the winds which pass over the country are destitute of moisture. In many parts little or no rain falls, throughout the year. On the western coast they are periodical, occurring from June till September. On the southern and eastern coasts, on the contrary, they occur during the winter months. During the rains, the whole country is covered with the richest verdure, and the senses are greeted with those fragrant odors which have given to a portion of the country the name of "Araby the Blest;" but the parching heat of the sun soon changes these fertile fields into an arid waste, and its scorching rays threaten to drink up all the fluids of the body, and turn man himself into a mummy. But for the relief afforded by the constant breeze the heat would be utterly insupportable, yet even the winds themselves are often suffocating from their dryness, or exhausting from their humidity. The tales told by travellers of the Samiel, Simoom, or Sirocco, the poisonous winds of the desert, have often been much exaggerated; for

while travellers have undoubtedly suffered much from the oppressive heat of the winds, and from the clouds of sand set in motion by them, there is good reason to doubt whether any have ever perished from any poisonous quality in those winds, or have been, as some have asserted, buried or overwhelmed by the sands, until death from other causes had overtaken them. There is a very strong resemblance, in almost every particular, between the Arabian desert and the African desert of Sahara.—Ophthalmia is quite common in Arabia, owing mainly, probably, to the irritation produced upon the eye by the glare of the sands, and their almost constant presence in the atmosphere. A species of leprosy, known as Arabian elephantiasis, is also prevalent, and is attributed to the bad quality of the food and water. The plague has occasionally visited the coasts, but never penetrates into the interior. The wandering Arabs of the interior are remarkable for longevity.—By far the greater part of the soil of Arabia is composed of loose shifting sands, and is, of course, unproductive. The portions toward the coast, which are more fertile, consist of an intermixture of sand and clay, which, when sufficiently moistened, yields abundantly. The country around Medina bears evidence of having, at some former time, been subjected to volcanic action, and there is little reason to doubt that some of the mountains of the interior are now, or have been within the historic period, active volcanoes. A somewhat remarkable phenomenon in the central portions of Arabia, especially those bearing evidence of volcanic action, is the sand gulfs or pits described by Baron von Wrede. These are large pits filled to the brim with a whitish impalpable powder, which seem unfathomable. The baron cast into one of them a sea-lead, which was sucked down so rapidly that he was fain to let go the line, which, though of considerable length, instantly disappeared. The mountains consist of porphyry, jasper, quartz, sandstone, alabaster, basalt, marble, and limestone. The minerals are blue alabaster, agates, carnelians, tourmalins, the emerald, the onyx, gypsum, saltpetre, sulphur, naphtha, asphaltum, iron, lead, and copper. Gold was formerly obtained in Yemen, but the supply has long been exhausted. Mines of iron, lead, copper, and rock-salt, are still wrought.—Although but a small portion of Arabia is susceptible of cultivation, its vegetable productions have always been greatly famed. The date, and other species of palm, stud the oases of the desert, and furnish food to the abstemious Bedouin. On the Tehama, the coffee-tree yields the small Mocha berry, so well known to all epicures. The balm tree (*ancyrus opobalsamum*), which furnishes the fragrant and costly balm of Mecca, the *acacia vera*, which produces the gum Arabic of commerce, the *cassia fistula* or purging cassia, the aloe, and the *olibanum* or frankincense, are the most valuable of the products of the soil. The durra or dourra (*sorghum vulgare*), a species of millet,

which furnishes the chief article of food to the village Arabs, the sugar-cane, wheat, barley, beans, rape, lentils, melons, gourds, figs, oranges, lemons, pears, quinces, apricots, almonds, peaches, grapes, tamarinds, and cocoa-nuts, form the bulk of the other productions of the country. Two of the most useful of the domesticated animals are undoubtedly natives of Arabia. The horse has been supposed to originate here, and, amid the deserts of Nedjed, the best breeds are still reared. In tractableness, docility, endurance, and speed, the Arabian horse has no equal. The camel with a single hump, and the dromedary, which is only a variety, and not a distinct species, are natives of the Arabian deserts. The camels of Arabia are more fleet than those of Africa, but are said not to endure thirst so long. The ass, also, originated in this country, and the onager, or wild ass, though perhaps a different species, still roams in the deserts of Nedjed. The domesticated animal is reared with care in Yemen and Oman, and is remarkable for speed and endurance. Many of them are exported from the ports of Oman. There is a race of oxen with a hump on the shoulders, like those of Syria, and this species probably originated either in Syria or Arabia. The broad, thick-tailed sheep is also common to the two countries, but their wool is coarse, and their flesh not delicate. Among wild animals, the rock-goat, or ibex, the gazelle, the antelope, the jerboa, an animal of the opossum family, are very abundant, and in the interior, the hyena, the panther, the ounce, the jackal, the wolf, the fox, the wild boar, and the wild cat, exist. There are many species of apes, some of which cause great damage to the coffee plantations of the Tehema. Among rapacious birds are found one or more species of the eagle, falcon, heron, owl, and ostrich. The partridge, the guinea-fowl, and the pheasant are also found in different districts of the country. Fish abound on all the coasts, and on that of Oman are found the *pinna marina*, or pearl oyster, in large quantities. The pearl fishery on this coast is said to employ 80,000 men. Reptiles are very numerous; tortoises, many species of lizards, some of which, like the *guaril*, are of great size, and are used for food; others, like the chameleon, are remarkable for agility and adroitness; serpents, some of them of very venomous species, batrachians, &c. The insects are numerous, and nearly all noxious; the locust often destroys the hopes of the tiller of the soil, and many of the others are capable of inflicting serious injury upon men or animals.—The methods of agriculture adopted by the Arabs are extremely rude, but owing to their industry, and the porous and friable character of the soil, which only needs water to make it yield abundantly, in the more fertile regions, they succeed in raising very good crops. In many parts of Yemen, ploughing is not attempted, but the ground is cultivated with a crowbar and hoe, as substitutes for the spade. Throughout nearly the whole country which is under culti-

vation, artificial irrigation is practised. At Muscat, wheat and barley are sown in December, and reaped in March.—For many centuries, the Arabians monopolized, in connection with their neighbors of Tyre, and Phœnicia, the greater part of the carrying-trade of the world, and even during the middle ages, though the Venetians, the Portuguese, and the Dutch, had entered into competition with them, they still retained the trade between India and Europe. The discovery of the Cape of Good Hope by the Portuguese, however, was the signal for a rapid decline in their commerce. Within a few years past, the opening of the overland passage to India, by the British government, the purchase and development of Aden as a seaport, and the energetic measures adopted by Saiyid Said, the present imaum of Muscat, for the extension of his commercial relations, have given the commerce of Arabia a new impulse. The principal exports of Arabia are coffee, much of which is produced in the country, though a very considerable portion is brought to Muscat, Mokka, and Jeddah, from Abyssinia, Nubia, and Egypt, and exported thence as genuine Mocha coffee, dates, gum Arabic, myrrh, aloes, the best being the product of the island of Socotra, though considerable quantities are raised in the interior, almonds, balm of Mecca, frankincense, some aromatic and medicinal drugs, and pearls. The traffic in pearls is almost entirely in the hands of the Banians, or Hindoo merchants, and amounts to something more than \$1,500,000 yearly. From Muscat, wheat, horses, raisins, salt, dried fish, and drugs, are also exported. In the way of imports, Arabia receives from Europe, silver, iron, copper, lead, fire-arms, and gunpowder; from Abyssinia, slaves, sheep, elephants' teeth, and musk; from the eastern coast of Africa, gold, slaves, amber, and ivory; from Egypt, rice, lentils, sugar, and oil; from Surat, linen; and from Coromandel, cotton. The imports of the port of Muscat amounted in 1845 to over \$5,000,000, and have been constantly increasing since that period.—The population of the Arabian peninsula has been variously estimated at from 12 to 15 millions. The latter is probably the nearest to truth, as recent explorations demonstrate that the interior contains more fertile lands, and a denser population, than was formerly supposed. It is estimated that the various races and tribes known collectively as Arabs, comprise nearly seven-eighths of this population; the remainder consists of Jews, Banians, Turks, Negroes, Abyssinians, Franks, and others. Of the Arabs, there are 2 classes, the fixed, or agricultural, and the nomadic. The first occupy cities, towns, and villages; the second, generally known as Bedouins, are a wandering race, living in tents, and moving in troops from place to place. Of the agricultural class, there are many distinct tribes, differing so much in manners, habits, and language, as to give the impression to the traveller that they originated from different stocks. The recent discoveries, at several points in the interior, of

Himyaritic inscriptions, and the existence of a language spoken by the natives of the interior villages, called Ekhili, bearing a much stronger analogy to the Himyaritic than to the Arabic, would seem to indicate that a portion of the fixed Arabian population are descendants of those sons of Ham who originally settled Syria, Phœnicia, and the countries adjacent.—The Bedouins, on the other hand, are, probably with less admixture than the inhabitants of villages, the descendants of Ishmael. With them the Arabic language is spoken with great purity and force. They are frank, hospitable, possessed of an indomitable love of liberty and independence, but are also revengeful, vain, superstitious, passionate, and given to robbery. Nowhere has the Bedouin been more graphically described, than by the prophecy of Ishmael's future career, Gen. xvi. 12: "And he will be a wild man; his hand will be against every man, and every man's hand against him; and he shall dwell in the presence of all his brethren." The Bedouins are divided into numerous tribes, some of very considerable numbers, while others, whose names have been famous for many centuries, are now dwindled to a mere handful of fighting men. The Aneizeh, a tribe occupying the region called El Hamad; and extending their wanderings over the Syrian desert, are the most numerous of all the Bedouin clans. They are said to be able to bring into the field from 80,000 to 100,000 warriors, and to number about 350,000 souls. The Beni Harb, the most formidable of the tribes of the southern desert, number from 80,000 to 40,000 warriors; the tribe of Asyr, about 15,000; the Beni Shammar from 6,000 to 8,000; while the Beni Koreish, the noblest of all the Ishmaelitic tribes, and specially distinguished as the friends of Mohammed, have dwindled down to 800 men, and the Beni Sad, and Beni Kahtan to from 500 to 800 each.—Mohammedanism, or Islamism, is the prevalent religion of Arabia, though, among the inhabitants of the Wadi Doan, a large and populous valley in the interior of Hadramaut, Baron von Wrede found traces of the ancient fire-worship; and M. Arnaud, in 1848, found among the mountains of Yemen many Arabs whose reverence for Hud, a prophet who preceded Mohammed, and who cursed him and his followers, was stronger than that for the prophet of the Koran. Mohammedanism, in the lapse of ages since the death of its founder, had lost much of the strictness and purity which characterized its earlier teachings, and the most gross, corrupt, and licentious practices had crept in, even to the worship at the holy places, Mecca and Medina. At a period when this corruption had reached its height a reformer appeared, in the person of Mohammed Ebn Abd-al-Wahab, a native of an obscure village in the mountains, born in 1692, and educated at Bassorah. Possessing the elements of character necessary for a reformer, the young Wahab, on his return from Bassorah, commenced the work of reform in his

native village. Being soon banished for his fierce onslaughts on prevailing corruptions, he fled to Derayah, the capital of the Hedjed, where, protected by a powerful sheik, named Saoud, he continued his denunciation of the prevalent moral degradation of his country. Upon a people as impressible as the Arabs, these fiery anathemas exerted a powerful influence, and the reformed faith spread rapidly. Ere long, like the prophet, he took the field in defence of his principles. His forces were led by the sagacious Saoud, and city after city, which had at first opposed his doctrines, became convinced of their truth when they were commanded by the edge of the sword. In 1765, at the death of Saoud, all eastern and southern Arabia had yielded its allegiance to the Wahabees. Forty years later, and the sheiks of the holy cities, and the sherif, or Turkish governor, of Mecca, had yielded to the force of arms what they had denied to the force of argument. All Arabia was avowedly reformed. Only a few stubborn mountain tribes, like those of the Wadi Doan, refused their allegiance. But the period of their sway was brief. Exasperated at his defeat, the sherif of Mecca made his complaints to the sultan at Constantinople, and Mehemet Ali, then pasha of Egypt, under the orders of his master, applied himself to the work of extirpating the Wahabees from Arabia. The undertaking was a formidable one, and it required vast outlays of men and money to accomplish it. But Mehemet Ali was one of those characters whose will is paramount to all else, and he had willed their destruction. The first attack was made upon them in 1811, but it was not till 7 years later that, after the most terrific slaughter on both sides, Abdallah, the Wahabite leader, was taken prisoner, and the power of the Wahabees was broken. Abdallah was taken to Constantinople and executed; but again and again did Mehemet Ali find it necessary to send large bodies of troops into the country to repress the rising spirit of revolt, and it was not till 1834 that these gallant reformers could be said to be wholly crushed. With the triumph of the Osmanlis the old corruptions have in a great measure returned, and the worship of the holy places is far more degrading and licentious than when the stern Wahabite leaders held possession of their shrines.—In the middle ages, while thick darkness brooded over Europe, the Arabs, then known as Saracens, cultivated the sciences, particularly mathematics, geography, and astronomy; and literature to an extent which made them the leading minds of the world. Medical and chemical science, too, were more profoundly studied here than anywhere in Europe; but with their waning political power came intellectual apathy and decay, till now the only remains of their literature are found in their wild but musical improvisations, and their science has dwindled into the dogmas of the schoolmen.—The early history of Arabia, like that of most oriental nations, is involved in mystery and myth. They claim de-

scent from Joktan, the 5th in descent from Shem, and from Iahmael; and undoubtedly the Bedouins originated from this stock, but a considerable portion seem to have had a kindred origin with the Egyptians. Among the descendants of Joktan one founded the kingdom of Yemen, another that of Hejaz. A successor of the former, named Saba, erected a stupendous reservoir or artificial lake, in which he collected the mountain torrents, and distributed them by canals over his territory, which, thus fertilized, became very productive. It was in this rich and densely populated region that Bilkis, who has recently been identified as the queen of Sheba who visited Solomon, reigned. In the reign of one of her successors, the reservoir burst its barriers, and the long pent-up waters, rushing through the towns and villages, carried desolation in their track. So complete was the destruction that the surviving inhabitants had not the means to rebuild the reservoir, and hence their once fertile fields became a waste and arid desert. A young French traveller, T. J. Arnaud, who visited this region in 1848, found among the ruins abundant evidence of its former grandeur in the massive blocks of stone covered with inscriptions in the Himyaritic character, and in the ruins of dwellings and temples which must have once approached in magnificence those of Palmyra or Tadmor. Himyar, the supposed founder of this city of Mareb, was the immediate successor of Saba, and, from the works attributed to him, must have been a wise and beneficent prince. He is supposed to have invented the alphabet known as the Himyaritic character. In the 5th century of our era the last monarch but one of the Himyarite dynasty embraced Judaism, and commenced a bitter persecution of the Christians in his dominions. This aroused the indignation of the Abyssinian Christians, who, early in the succeeding century, invaded Yemen with a large army, and after several sanguinary battles defeated the Himyarite king, and drove him in despair into the Red sea. The government passed into the hands of the Abyssinian generals, but one of the descendants of the former kings obtaining the aid of the king of Persia, succeeded in driving them from Yemen, and reinstating the ancient line. His reign was short, however, and with him terminated the race of Himyarite kings. A new era soon dawned on Arabia, in the birth of Mohammed, in Nov. 570. The fiery genius and enthusiasm of Mohammed soon gained for his new doctrines a firm foothold, and Mecca once conquered, he found nearly the whole peninsula at his feet. The skill and bravery of Abubekr, Omar, and Ali, carried forward what he had begun. These three, in turn, succeeded Mohammed, under the title of caliphs; they were followed, after a bitter civil war, by Moawiyah, the founder of the dynasty of the Ommyiades, who held the supreme power over the Moslem empire until A. D. 750. To this dynasty succeeded that of the Abbassides, who transferred

the seat of the caliphate to Bagdad, which was built by Al-Mansoor, the second prince of that house. From the 8th to the 18th century they held sway over the greater part of the Mohammedan countries, though more and more restricted by the occasional secession of a province, or its revolt under the influence of some leader descended from another branch of the royal race. Stripped by degrees of their finest provinces, the Abbassides still retained a barren sceptre in their grasp, until the beginning of the 16th century, when the Turks took captive the last of the dynasty, and the caliphate passed into the hands of the Osmanlis. The subsequent history of Arabia is but a succession of squabbles among the numerous petty chiefs, among whom the country is partitioned, except the reform movement of the Wahabees already described in speaking of the religion of the country. The following works may be consulted for full information on the subject of this article: Niebuhr's "Travels," Valentia's "Travels," "Travels of Ali Bey," Burokhardt's "Travels in Arabia, and Notes on the Bedouins," Willstedt's "Travels," Baron von Wrede's "Journey to Hadramaut," Thomas Joseph Arnaud's "Travels in Yemen," Lieut. Burton's "Mecca and El Medineh."

ARABIAN HORSE, the most celebrated for speed, endurance, spirit, courage, intelligence, and docility, of all the equine family. It has been imagined that the horse is naturally indigenous to Arabia, but there is no greater error; for, on the contrary, Arabia was one of the last countries of antiquity to which the horse was introduced. Nevertheless, in Arabia and the conterminous countries of Africa and Asia, the horse has arrived at such a degree of excellence as no other horse in a state of nature has ever attained. The peculiar characteristics of the Arabian horse are the perfection of his form, the flatness, strength, and ivory-like solidity of his bones, and his tendency to form hard, solid muscle, in contradistinction to cellular tissue or fat. The canon bone of a fourteen-hands-high Arab, though not equal to one-fourth of that of a Flanders dray-horse, in compass, exceeds it 20 times in strength and soundness. The Arab is small in size, rarely exceeding fourteen hands; he has a beautiful, lean, bony head, with a very broad forehead, large, prominent, expressive eyes, a nose rather hollow than prominent, a tapering muzzle, and large, well-opened nostrils; his mane very long, thin, and silky. In the desert he is the familiar comrade, tent-mate, and playmate of his master, as docile and intelligent as a dog. His ordinary food is one meal of barley, a few dates, and a draught of camel's milk, *per diem*; and on this scanty fare he will accomplish 60 or 80 miles a day for many successive days. The modern English and American thoroughbred horse is lineally descended from a nearly equal mixture of Arabian, Barb, and Turkish blood, and is, to all intents and purposes, the best horse now existing in the world. The most famous imported Arabs,

and those which have transmitted the highest qualities to their posterity, are the Darley Arabian, brought to England in Queen Anne's reign; the Leede's brown Arabian; Honeywood's white Arabian; the Oglethorpe Arabian; the Newcombe bay mountain Arabian; the Damascus Arabian; the Cullen brown Arabian; the chestnut Wilson's Arabian; the Oorabe gray Arabian; and Mr. Bell's gray Arabian; the Bloody Buttocks, and Bloody-shouldered Arabians; the Alcock's and Devonshire Arabians; and many others of inferior note. The horse, long called the Godolphin Arabian, is now very generally conceded to have been a Morocco barb. Many Arabians have been recently imported, both into England and the United States, but they have in no respect improved the breed; and so low do they now rate as progenitors in England, that the colt of Arabian sire and Arabian dam is allowed no less than 86 lbs. advantage in a race with English bred horses.

ARABIAN LANGUAGE AND LITERATURE. The Arabian language belongs to the so-called Semitic languages, together with the Hebrew, Aramaic, Ethiopian, Phœnician, Syrian, and other minor languages, and is among them the richest, not only in literature, but also in words and forms. It has two principal dialects, of which each is, or was, spoken in several sub-dialects: namely, the northern, which, through the Koran, has for centuries been the general tongue of the Arabian empire, and is best of all represented in literature; and the southern, of which a branch, the Himyar tongue, has outlived the others in a few monuments and relics, and is supposed to be the mother of the Ethiopian language. It is the former which up to this day is in various degenerated dialects spoken in Arabia, parts of Mesopotamia, Syria, Egypt, Abyssinia, Nubia, Tripoli, Tunis, Algiers, Morocco, and all over the Sahara desert, and forms part and parcel of the Turkish, Persian, and several of the East India languages. The Arabian language is characterized by an abundance of rough guttural sounds, the great richness and pliability of the vowels, while the consonants are comparatively unchangeable and in almost all radical words consist of only 8 letters, under which the vowels are written or rather as a rule, not written, but only hinted or guessed at. Pronouns, prepositions, adverbs, and conjunctions, do not form separate words, but are placed either at the commencement or at the end of the nouns and verbs, and blended with them into one word. In most of these features the Arabic, with all known Semitic languages, is widely different from all other families of languages, and distinguished by a certain dignity, volume of sound, and vigor of accentuation and pronunciation. The Arabic, in particular, has proved amply capable of serving as a vehicle for every science, and for a rich, highly imaginative lyrical poetry. It had its grammarian as early as 650 of our era, called Abul-Aswad-al-Duli, and a host of others, at later

times, among whom we mention Ibn-Malek (whose *Alfiya* was published by De Sacy, Paris, 1838), Ibn-Hadjil (*Kafya*, Rome, 1592), Al Sanhedji (*Aladshrumiye*, Rome, 1592, Arabic and Latin by Erpen, Leyden, 1617, Arabic and French by Bresnier, Algiers, 1546), and Al-Djahuri, died in 1009, whose *Al-sihah*, a dictionary of the pure Arabic, is still valuable, Mohammed-ben-Yacob-al-Firuzabadi, 1414, the author of the best Arabian dictionary extant (2 vols., Calcutta, 1817), and Djordjani (*Defnitions*, published by Flügel, Leipsic, 1545), whose dictionary explains only scientific and artistic terms. When the Arabian empire was dissolved, the Arabians ceased to have their own grammatical writers, and Europeans began to take their place. Postel (1538) in France, and Spey (1583) in Germany, revived the study of the language and its grammar. Among the many distinguished writers in this line, among the French, English, and Germans, we mention only Lane and his *Thesaurus* or dictionary of the Arabic, not yet completed; Von Hammer, whose History of Arabian literature appeared at Vienna, 7 vols., 1842-'57; Zenker, whose *Bibliotheca Orientalis*, Leipsic, 1846, is an index to all printed Arabian works; Jahn (1802), De Sacy (1826), editors of Arabian anthologies. The best works for learning the modern Arabian language, as spoken in Algiers, Syria, Egypt, etc., are Sheik Altantow's *Traité de la langue Arabe vulgaire* (Leipsic, 1848), a grammar, Berggreen's *Guide Français-Arabe vulgaire des voyageurs* (Upsala, 1848), a dictionary. The Arabian is, like all Semitic languages, written from the right to the left; the characters are of Syrian origin, and imported into Arabia before Mohammed's time. The oldest characters, called *Oufic*, are rough, and only 16 in number, for the 28 consonants. Still, they were not superseded for about 300 years, when the so-called *Neskhi* characters were adopted. These are used to this day. The same characters are distinguished by different points for different consonants, while the vowels, often not written at all, are marked out by short strokes over or beneath the line.—It is impossible that a gifted people under a genial climate and amid a subtropical world of animals and plants, enjoying the freedom of nomadic tribes and the leisure to embellish their life with the noblest of arts, not rich enough to invite conquerors, not too poor to want the means of self-defence, and, therefore, independent, proud, brave, adventurous, like all nomadic tribes, and highly imaginative, by their Semitic descent, by their clear, serene sky, and the strong contrasts of desert and oasis, of picturesque mountains and charming valea, of the tranquil enjoyment of life, and of hair-breadth escapes from sudden death, should not have an early literature of lyric poetry. The Arabians had a rich poetic literature even before Mohammed, and one far richer, afterward, when his new, voluptuous, conquering, and fantastic religion had created an Arabian nationality

and national pride. Throughout the Arabian literature, this proud, independent, and exuberant spirit can be traced. The religious services of that age were glorified by poesy, the successful songs in poetical contests were consecrated to the Divinity, and, written in golden characters on byssus, hung up in the caaba, the ancient national sanctuary at Mecca. Seven such songs are yet preserved, full of passion, manly pride, and intensity of imagination and feeling. De Sacy, in his *Chrestomathie Arabe*, has some specimens of that early period by the bards Nabegha, Asha, and Shanfara, and Freitag has published the "Praise song on Mohammed," by Kaab-ben-Zohair, a cotemporary of Mohammed (Bonn, 1822, Arabic and Latin). The 2d period of Arabian literature begins with Al-Mansoor's reign, 753. It is but natural that the highest development of literature, science, and art in every nation should follow in the wake of great national exertions which have united its different tribes, and inspired them with the feelings of national pride and greatness. After, therefore, Mohammed had preached in the Koran (which of course became the standard work of poetico-prosaic style) the holy war for spreading Islamism all over the world, and had, a short time before his death, united all the Arabian tribes into a nation; after, in about 80 years, the Arabians had made their nation, tongue, and religion, the dominant one in a third part of Asia, almost one-half of Africa and in Spain, and had formed an acquaintance with the then most educated nations of the world; their first leisure, under the caliphs of the house of Abbas in Bagdad, since 749, was spent on the creation of a national literature, and the cultivation, not only of luxury and sensual refinements, like other oriental nations, but likewise of art and science. Under Haroun-al-Rashid, who began with encouraging poetry, importing learned men from every country, who translated and multiplied the standard works of Greek and old Persian literature; under Al-mamoun (813-'83), who offered the Greek emperor 100 cwt. of gold and a perpetual peace, if he would lend him the philosopher Leo only for a short time, and who founded good libraries and schools in all the capitals of the empire; and under Motassem (888-'41), who was himself an accomplished man of letters—the Arabian literature ascended in quick succession to its summit of excellence, not only in the eastern, but also in the western empire, where the Ommyiades in Spain, from Cordova, spread rays of enlightenment and cultivation. Here the period of Arabian civilization was even longer than in the East, and the performances in almost every branch, at least of science, more splendid, solid, and genuine. Fifteen academies, many higher and popular schools, the library of 600,000 volumes of the Caliph Hakem, and the strange fact that the best scientific students of the Christian world, like Gerbert, afterward Pope Sylvester II., came to Cordova to learn the Aristotelian philosophy, medicine, and mathematics at the

hands of Arabian teachers, bear testimony to the genius of this nation and its achievements. The Christian world is indebted to these Mohammedans for more than it had been able to give them; they returned the spiritual capital which they had received as a loan from Christian countries, with ample interest. But for them, many classical works would not have lived to posterity, many important discoveries would not have seen the light, and the civilization of the European West and North would have been subjected to a longer and harder struggle for mental emancipation.—As to poesy, the ancient impetuosity of expression, the passionate feelings, and the spirit of individual independence, no longer characterize the productions of this period. In their stead appears a refined form, rhythmical polish, elegant diction, and tame sentiments. There is no star of the first rank among the numerous poets, there is no attempt at dramatic creation, not even a great national epos, such as nearly every historical nation can exhibit. The Arabian mind is not classical enough, fails in the harmonious proportions, in the considerate combination of fancy and philosophy, of truth and beauty, which are the great features of the drama and the epos; it is always eccentric, one-sided, either soaring high into the realms of imagination, and losing the soil of sober reality, or calculating, forming notions, collecting useful facts, and speculating after the rules of logic. This is the reason why we here find lyrical and romantic poesy almost exclusively fostered. Tender idyls by Motenabbi Tograi (published by Pococke, Oxford, 1661); Ibn-Doreid (published by Haitsma, Leeuwarden, 1778); the "Praise of Mohammed" by Busairi (published by Rosenzweig, Vienna, 1824); the *Makamat* of Hamadani and particularly of Hariri, a kind of poetry in the style of Boccaccio, namely, a series of improvisated novelettes and anecdotes, in which the style, polished to the utmost and charming by every embellishment of diction, is the chief feature; the novels of Ibn-Arabshah (published by Freitag, Bonn, 1832), the allegory of "The Birds and the Flowers" (Arabic and French by Garcin de Jassy, Paris, 1841), the fairy tales and romances of the "Thousand-and-one Nights," translated into almost every civilized language; the romances: "Feats of Antar," the "Feats of the Combatants," the "Feats of the Heroes," and many similar, which very early found their way into the popular literature of Europe; indeed, almost every kind of lyrical, didactical, and half-epical poetry, is well represented. It is strange to see how much the troubadours have borrowed from the Arabians, while these owe their tales, fables, fairy stories, partly to the Persians and Hindoos, and partly to Greek originals, which are now lost. Next to poetry we must look to theology for original Arabian literature. We need not here characterize the Koran; the Soonna or oral tradition, which is believed to be inherited from the prophet by his earlier successors, is far more reasonable and more creditable to its much later

authors. It is well known that Turks and Persians (*Soonnees* and *Sheeahs*) regard each other as infidels, because the former adopt the Soonna as entitled to the same respect as the Koran, while it is rejected by the latter. But even within the orthodox church of the Soonnees there were 76 sects, differing in the position they claim for reason and philosophy in regard to the sources of revelation. Thus 4 sects of the 76 considered as orthodox, differ as follows: the Hanefites do not reject tradition, but prefer reason in the interpretation of holy writ; the Shafites repudiate the use of reason and philosophy fundamentally; the Kambalites and Malechites admit reason only where tradition fails. The interpretation of the Koran is of double importance, because it is the sole and exclusive source and foundation of Mussulman social and political law. The number of interpreters and commentators of the Koran is considerable, and we mention among them Samakhahari and Baidhawi (published by Fleischer, 2 vols., Leips., 1844). The dogmatical work of Omar-al-Nasafi, and the celebrated code of laws by Sheik Ibrahim, are translated by Mouradgaa d'Ohsson, *Tableau général de l'empire ottoman*, 2 vols., Par. 1787. The French in Algiers have furnished us with good compilations from the Koran and its juridical commentators, among which *Précis de jurisprudence musulmane, selon le rite Malékite, par Kalil-ibn-Ishak*, French by Perron, 2 vols. Paris, 1848, and Du Courroy *Législation Sunnita, rite Hanéfi*, Paris, 1848, have met with approval. Philosophy would, of course, not be a favorite with the strictly orthodox sects, nor treated with freedom of sentiment by any sect, the revealed religion being the only fundamental source of belief, while philosophy is condemned to perform the merely formal service of arranging and commenting on what has been revealed, and of filling up gaps where nothing was thus communicated. Aristotle, whom they obtained in Spain in Latin translations from the Goths, in Asia in New Platonic editions and commentaries from Alexandria, was, therefore, only an authority in points which did not touch the creed. They commented on and continued his deductions. Alkindi, of Basra, about 800, Alfaraabi (954), Avicenna, who died 1036, Ibn-Yahya, Algazzali (1111), who tried to refute all Greek philosophy, Abudsafar-ibn-Thophail (1190), who in a philosophical romance, *Hat-Ibn-Yokdan* (published by Pococke, Oxford, 1671), was the first to teach that man by degrees developed himself out of the animal kingdom, and Averroës, an excellent commentator on Aristotle, have, since better editions and expositions of the great Greek have helped to understand him right, lost much of their former significance, but were most valuable for their age. Natural science gained much of permanent value from the Arabians. Many Arabian expressions in use up to this day for certain stars, and the words azimuth, zenith, nadir, algebra, alcohol, alkali,

and others, will remind posterity of their merits. In geography they stand foremost; they explored all of Northern Africa, and almost all of Asia, and laid down their explorations in good maps and the works of Ibn-Khordadbeh, El-Istakhri (*Liber Climatum*, published by Möller, Gotha, 1889), Ibn-Haukal, about 815 (*Irak*, published by Uyenbroek, Leyd. 1832), above all El-Edrisi about 1150 (French by Jaubert, 2 vols. Par. 1836), Omar-ibn-al-Wardi (Ar. and Lat. by Hylander, Lund, 1824), Yakuti, whose important work is still unpublished, Abulfeda Kaswini ("Cosmography," published by Wüstenfeld, 2 vols. Gött. 1848), and others. The Arabian travellers were not less important. Al-Hasan-ben-Mohammed-al-Wasan, of Cordova, is known under the name of Leo Africanus, and described in the 16th century his travels through Africa and part of Asia; Mohammed-ibn-Batata, translated by Moura, Lisb. 1840, visited, in the 13th century, Africa, India, China, Russia, &c., and Ibn-Fozlan (published by Frähn, Petersb. 1823), saw Russia, and described it graphically in the 9th century. The astronomer Albiruni wrote, in the 11th century, a valuable book on India, published by Reinand, Paris, 1845. In medicine the Arabians excelled all their contemporaries, and Europe owed to them whatever she knew in the middle ages on botany and diagnostics. The Koran forbidding the dissecting of bodies, they could make no progress in anatomy; but they made up this loss by laying the foundation for chemistry (the name of alchemy or alchymy is of Arabian origin). There were celebrated medical schools in all the Arabian capitals, and when the first Christian school of medicine, in Salerno, was established, almost every thing was borrowed from the Arabians. Aharan first described the small-pox, Rhazes wrote a treatise on small-pox and measles (Eng. by Greenhill, Lond. 1843), Avicenna was the celebrated author of the "Canon of Medicine," an authority for many centuries. Abulkasem wrote on surgical operations and instruments, Averroës on the whole science of medicine, Ali-ben-Ibn on ocular diseases (Arab. and Lat. by Hille, Dresd. 1845). On natural history there are works by Damiri, Ibn-Baitar, and Kazwini; on agriculture by Abu-Zakarya of Seville. In mathematics the Arabians rank even higher; they simplified the science by the adoption of the original Indian system of decadic numbers and ciphers, and of the sines in geometry, reduced the trigonometrical methods of the Greek in number, enlarged, if not invented algebra (Muhammed-ben-Musa, Ar. and Engl. by Rosen, Lond. 1830), wrote on optics, translated Euclid, commented on Ptolemy's "Trigonometry," had observatories in Bagdad and Cordova, and fixed new stars in their maps. Albatan observed in the 10th century the progression of the apsidal line of the earth's course, Mohammed-ben-Djebber-al-Batani the inclination of the ecliptic, and Abulfeda combined geography with astrono-

my and mathematics, a merit in which he anticipated the modern age. The service of the Arabians in history is not sufficiently established, their works in this line needing a still more extended and ample research. They have those of Masudi, "Historical Encyclopedia," entitled "Meadows of Gold and Mines of Gems" (Eng. by Sprenger, 1 vol. Lond. 1841); Tabari (*Annales*, published by Rosegarten, Greifsw. 1881); Hamza of Ispahan (Ar. and Lat. by Gottwald, Leips. 1844), all of them universal historians; Abul-faraj and Elmakin, *Historia Saracenica*, published by Erpen, Leyd. 1825, were Christians; Abulfeda wrote many historical monographs, Navairi (*Histoire de Sicile sous le gouvernement des Arabes*, by Caussin, Par. 1802). The French academy is about publishing some other works on the crusades. The history of the Arabs in Spain was written by Abul Kasem (1189) and many others; Ahmed-al-Mokri was published by Gayangos, 2 vols. Lond. 1841; Abu-Mohammed-Assaleth, Portug. by Moura, Lisb. 1840, Ibn-Udair by Dozy, Leyd. 1849. Ibn-Abi-Zer wrote the Arabian history of Mauritania (*Annales regum Maur.* Ar. and Lat. by Tornberg, 2 vols. Ups. 1848), and Ben-Abil-Raimi, *Histoire de l'Afrique* (French by Pelissier and Remusat, Paris, 1845); Kotb-Eddin, a history of Mecca, Kemal-Eddin of Aleppo; others wrote biographical works; Makrizi, a history of the Egyptian Soldans (French by Quatremère, 2 vols. Par. 1837), and a history of the Copts (Ar. and Germ. by Wüstenfeld, Gött. 1846), a number of other special works on Egyptian history, Emad-Eddin, a biography of Saladin, Ibn-Arabshah that of Timour Khan (published by Manger, 2 vols. Leeuwarden, 1767); Ibn-Kaaldun an introduction into the study of history in a truly philosophical spirit, and a history of the Berbers; Hadji-Kalfa, a history of Arabian, Persian, and Turkish literature (published by Flügel, vols. i.-v. Lond. 1835-'50). They write, as a rule, simply and without rhetorical flourish, and may yet help to fill up many a gap in our historical resources. It is a pity that so gifted and energetic a nation should, since their political decline, have also declined in literature; but over-refined and imbued with Oriental luxury, they found their Capuas in Cordova and Bagdad. Compressed by warlike neighbors into narrower limits every century, their scientific and artistic spirit died out with their national glory and power. This would certainly not have been the case but for the rigidity and want of development in their religion, which with its fatalism and want of nobler spiritual elements, speedily enfeebled their natural energy. There are still among them a few learned men, mostly grammarians, commentators, and compilers; some others have produced poems and works of travel under the influence of European civilization; some popular songs of modern times have been collected, but they are scarcely noteworthy. Finally, the Arabian books written by Christian authors and Jews, whose number is not small, and among

whom Maimonides must be mentioned, cannot properly be classed with the Arabians.

ARABIAN NIGHTS, called also the "Thousand and One Nights," a collection of wild and delightful stories translated from the Arabic, and more widely diffused among the nations of the earth than any other product of the human mind. While it is read or recited to crowds of eager listeners in the Arab coffee houses of Asia and of Africa, it is just as eagerly perused on the banks of the Tagus, the Tiber, the Seine, the Thames, the Hudson, the Mississippi, and the Ganges. Beside the millions of Moslems whom this book styles the true believers, the still more numerous millions of Christians, though their religion and themselves are condemned in it, read and enjoy it, for they can nowhere find its equal in the splendor of its pageantry, the variety and boldness of its incidents, and the expression of fervent and intensely natural desires. This unique character also, as has well been said, obviates one objection to placing romances in the hands of the young. While the youth profits by the amount of wordly wisdom displayed by the ensnarers, and those who foil them, he can never feel a disappointment that the real world should be so different; for where every thing is so unlike the world around him, he feels when he treads upon this enchanted threshold that he is entering the realms of pure imagination. While there are children on the earth to love, so long will the "Arabian Nights" be loved; and we all owe this pleasure to one who was himself a poor French boy. Antoine Galland was born of poor parents, at Rollo in Picardy, in 1646. He lost his father while an infant, and was placed in the college of Noyon at the age of 13. His mother was too poor to keep him there. He was accordingly put to a trade. He left it in disgust, and went to Paris. While at college he had gained some knowledge of Latin, Greek, and Hebrew. At Paris he was befriended by Du Plessis, and placed under M. Petitpied, doctor of the Sorbonne, with whom he studied oriental languages. He was named to accompany M. Nointel to Constantinople, where he learned modern Greek. He went thence to the Holy Land. In 1675 he returned to Paris with a collection of medals, which proved so interesting and valuable that he was sent to get more. In 1679 he was employed in the East in collecting manuscripts for the celebrated Colbert; and at this time he must have obtained his copy of the "Arabian Nights," of which he translated and published a large part, thus winning for himself the gratitude of innumerable generations of the young. If, however, we seek to discover the author of the original Arabic work, we shall find it impossible. Even the period and the place in which it was written can only be inferred from internal evidence. The earliest known date connected with it is contained in a marginal note to the copy of the Arabic manuscript which M. Galland brought with him from Syria. This note was written,

as it appears, by Wahaba, a Syrian Christian of Tripoli, in Syria, and prays for long life for the owner (at first it was erroneously translated author) of the manuscript. This date is 1584 A. D. In many of the stories Haroun al Rashid is familiarly spoken of and introduced among the characters; these must, therefore, have been written some little time after his death. In all the stories the Moslems are spoken of as the true believers, and Christians, Jews, and Ghebers, or Magians, are treated as inferiors. It is, therefore, a necessary conclusion that the writer was a Moslem. The time then must have been after the establishment of the religion of Mohammed, and at least some of the stories must have been written after the time of Haroun al Rashid. But the most acute and curious remark upon this subject has been made by the learned orientalist, De Saoy, who refers to the fact that coffee was not in use at that time. Now, it is not strictly true that coffee is not mentioned at all in the "Arabian Nights," but it is spoken of so seldom (only 3 times in all), and in such a way as to show it to be most probably the work of a copyist, or in some way an interpolation. For certainly the offering of coffee, which has so long been a necessary part of polite hospitality in the East, would necessarily have been introduced into every story touching, as they all do, upon domestic life. Coffee was not commonly used in Arabia before 1500 A. D., having been introduced 1454 A. D. Tobacco is mentioned but once, and then so very incidentally that it may very well be considered an interpolation. As this weed was not introduced into England until 1565, its appearance in the East must have been at least as late as this epoch. The style of the work is not the pure old Arabic, but the ordinary spoken language of Syria and Egypt. From what has been said, the year 1450 A. D. may, perhaps, be taken as the safest approximate date. As to the country in which this book was written there is considerable difference of opinion. The learned Von Hammer contends for Persia, De Saoy for Syria, and Lane for Egypt. The first copy met by M. Galland was found in Syria; and Bagdad and Damascus are frequent scenes of action. On the other hand, Mr. Lane contends that the description of Arab life at Cairo, and in Egypt, are so minutely accurate, that none but a native of that country could have written the book. Persia and the Persians have so little prominence in the work that it is difficult to understand how Von Hammer can believe that in its present shape, at least, it could ever have been written by a native of that country. His ideas are, however, more busy with the ultimate than the immediate origin of the work, and this brings us to the last and one of the most interesting considerations connected with this admirable collection, and that is, did the author invent or compile these stories? and are they ancient or modern inventions? A careful consideration of all the

researches of the most learned orientalists must bring us to the conclusion that some were invented by the author, some caught from his contemporaries or those immediately preceding, and that others have come down to us from remote ages and in various forms; these last of course being fitted with scenery, machinery, dresses, and decorations to suit the age and country of the writer. Mr. Hole, in his small but most learned treatise; Mr. Keightley, in his interesting little book "On the Transmission of Popular Fictions;" and Mr. Lane, in the copious and valuable notes to his excellent translation from the original Arabic, have supplied us with the materials for some most curious parallels. In the story of Bedr Basim and Joharah we find our Homeric acquaintance Circe, under the name of Queen Lab, amusing herself by transforming her lovers into animals of various kinds. In the third voyage of Sindbad we find our old friend Polyphemus under the guise of a black giant still at his, to him, interesting entertainment of crunching the tenderest travellers he can find. As we know that several of the works of the Grecian masters were translated into Arabic, Homer in particular having been translated into Syriac by Theophilus of Edessa, chief astronomer at the court of Elmahdee, the source of the above is evident. The flying horse of brass may be a counterpart of Pegasus; but there is a curious passage in Plato, as quoted by Larcher in his notes to Herodotus, in which that author makes Gyges, a poor shepherd, to have penetrated into the palace of king Candanes by means of a ring which rendered him invisible, and which he found upon the finger of a dead man enclosed in a horse of bronze. This is curious inasmuch as it is an Asiatic story quoted by a Greek as early as 890 B. C. This makes no mention, it is true, of the horse as a flying one, but a counterpart to the ring is found in the cap conferring invisibility in the story of Hassan el Basrah, and was already familiar to us in the story of Jack the Giant Killer. The flying horse is also found in Chaucer (1328-1400), in his story of "Cambuscan bold." We find him also (Clavileño Aligero, the Wooden-pin Wing-bearer) in Cervantes (1547-1616). The escape of Sindbad from the cave in his fourth voyage is evidently taken from Plutarch's account of the escape of Aristomenes, and the idea of the surviving wife or husband being buried alive with the dead may very well have come to the author from the suttee of the Hindoos. Kindersley's specimens of Indian literature furnish us, in the detection of Nella Rajah by his skill in cooking a particular dish, the source perhaps of the detection of Bedreddin, and this is stated to be a story of the highest antiquity. The account of the mountain of loadstone is to be found in Pliny (Geog. vii.). Serapion also speaks of this. That immense bird, the roc, or rukh, or rukh, is spoken of still more extravagantly by other Arabian writers, as quoted by Bochart in his Hier-

ozoicon. The old traveller Marco Polo (1250-1323) talks through a whole chapter *de maxima ore ruck*. One of its feathers was 12 paces in length, and its food was elephants, which it caught and flew away with. The story of the valley of diamonds and of the method of getting them, by pieces of flesh thrown into it and afterward brought up by birds, is to be found in a work written by Epiphanius, bishop of Salamis (408 A. D.) Mr. W. H. Morley, in a note to Mr. Lane, says that he has found one of these stories in a collection of Persian tales, and the Persian preface to this book declares that it was written in the Pehlevi (ancient Persian) tongue. In the year 888 most probably, of the Hegira, 960 A. D., it was translated into the Dari language. The author of the preface then mentions that he has rendered it into modern Persian. It is clearly shown from a passage in the Golden Meadows of El-Mesoudeh (877 H. 987 A. D.), that a Persian collection of stories called Hezar Afsaneh, in Arabic Elf Khurafah, the Thousand Fanciful stories, existed before the Arabian Nights. This passage was much dwelt upon by Von Hammer, but considered as altogether inconclusive by De Sacy. Von Hammer has, however, discovered another passage in the *Fihrist* which so clearly identifies the Persian Hezar Afsaneh in its plot at least with the Arabian Nights, that there is no longer any room to doubt that the general plan and many of the stories must have been borrowed from this older collection. They are called the Thousand and One Nights, but all the stories that have been discovered thus far make only 568. As the author of the *Fihrist*, however, remarks, more than one night was consumed in relating one story. Of the different English translations, the old one from Galland contains our old favorites; that of Lane is valuable for the closeness of its translation, letting us still further into the arcana of eastern life. The Calcutta translation by Torrens and Macnaughton has versified, and in many instances very well, the poetical extracts, giving us also many details omitted in the preceding.

ARABIOI, or ARABIANS. The gospel was introduced into Arabia at a very early date. Paul was there immediately after his conversion (Gal. i. 17). We do not know that he established any church there. Eusebius says (vol. vi. 19), that (217) "A soldier handed a letter both to Demetrius (bishop of Alexandria), and to the prefect of Egypt, from the governor of Arabia, the purport of which was that he should send Origen to him in all haste, in order to communicate to him his doctrine. Wherefore he was sent by them." Beryllus, who was bishop of Bostra, in Arabia, began soon to introduce certain Arian doctrines among the Arabians, which were readily embraced. The followers of Beryllus received the name Arabioi. They denied the divinity of Christ, affirmed that the soul dies with the body, and is raised to life again with it in the resurrection. Origen

contended with Beryllus, and a synod condemned the Arabioi as heretics.

ARACAN, a town of British India, formerly capital of the province of Aracan, on the east coast of the bay of Bengal. The province is subject to immense quantities of rain, and is consequently unhealthy. Its soil is the property of the East India company. According to the native annals, Aracan was once a kingdom which extended over part of China and Bengal. The country then contained 2,000,000 inhabitants. The town of Aracan lies on a branch of the Aracan river, in a district which for 200 miles is one vast mass of vegetation, mud, and marsh. The inhabitants of Aracan are nearly all able to read and write, and are Buddhists. They export, chiefly to Bengal, ivory, gold, silver, salt, young horses, and rice. In 1846 the shipments of the latter article amounted in price to £120,000.

ARACATI, a port of Brazil, on the Rio Jaguaribe, in the province of Ceara, about 10 miles from the sea, lat. 4° 31' S. long. 37° 48' W. It has 5 churches, and a very fine town-hall. Its exports are mainly cotton and hides. Of the former, about 800,000 lbs. are shipped annually, and of the latter, some 2,000 skins. Its trade would be much more considerable, but for the difficult and dangerous navigation of the river, which has a bar at its mouth, with only 8 feet of water. It is subject to severe floods during the rainy seasons. Population, about 5,000. The name Aracati is also applied to a river, in the same province, which, after a course of about 120 miles, enters the Atlantic by two mouths.

ARACATSOCHA, a plant found in the Andes. It is described as being more nutritive than the potato, which is also indigenous to that country. The soil in which it grows most congenially is moist and light. It is cultivated in Germany. Considerable interest has been excited among naturalists and scientific men, by the fact that this plant has also been discovered growing native in the country of Sus, on the north side of the Atlas, and is called by the Arabians, *aracatscha*, or *atscha*, which signifies the "dry root." How has it happened that this plant is designated by the same name among two nations so widely separated by an intervening sea? Does it throw light on the ancient nautical knowledge of the Arabians, or does it tell of geological conditions of the earth in former days, by which these two great bodies of land were once united?

ARACHNE, a Lydian maiden, who was famous for her skill in the art of weaving. She challenged Minerva, and wove a piece of cloth on which the amours of the gods were represented. This work was so faultless that Minerva, despairing of being able to excel it, tore it to atoms, whereon Arachne hung herself. The goddess, however, loosened the rope, and saved the life of Arachne, but notwithstanding this, the rope was transformed into a cobweb, and the maiden into a spider, that insect which Minerva most hated.

ARACHNIDA (Gr. *αράχνη*, a spider, and *ειδος*, resemblance), a class of invertebrated animals belonging to the articulates. This class includes spiders, mites, and scorpions. The arachnida differ from insects in having no antennae; in the number of eyes being, in most species, 8; and, even when only 2, in never being placed laterally on the head; in the legs being usually 8, although, in some species, 6, and in others 10; in their respiratory apparatus consisting of radiated tracheae. The greater number of the arachnida are carnivorous. Some parasitic species, such as the minute parasite mites, are furnished with a sucker, in some respects constructed like that of the gadfly. In other species there is a pair of upper jaws and a pair of under jaws carrying jointed feelers, and between them a sort of tongue, formed by a projection from the breast. At the back of the mouth there is a piece of horny texture, termed by Savigny, Latreille, and Audouin, the *pharynx*, forming the entrance into the gullet. The gullet, the stomach, and the intestines, run in a direct line from the pharynx to the vent. In the greater number of arachnida there is a complete circulatory system of arteries and receiving veins, returning blood. The respiratory organs have 2 peculiarities, on which Latreille established his 2 great divisions of arachnida (*pulmonaria* and *trachearia*). The *pulmonaria*, which Straus-Dürckheim and Leon Dufour place in the 1st or chief division, comprises the numerous species of spiders and the scorpions. Their respiratory apparatus consists of small cavities formed by the union of triangular laminae of extreme thinness. The division furnished with air-pipes (*trachearia*) similar to those of insects, comprises the harvest-spiders, or shepherd-spiders, mites, and other genera. "The presence of tracheae, or air-pipes," says Latreille, "excludes all complete circulation; that is, the distribution of blood to different parts, and its return from the respiratory organs to the heart." The eyes of the arachnida are all simple. In the greater number of spiders they are 8 in number; but in some they are 6; in others they are only 2. Nothing is known of the organs of hearing in arachnida, although it has been well ascertained that these animals do hear. Male spiders are always much smaller than the females. The *palpi*, or feelers, of the male are furnished with organs of various forms, usually bulging at the tip; the feelers of the female gradually taper to a point. The eggs of spiders, not having a hard shell, are soft and compressible. Before being laid, they lie in the egg-bag, squeezed together and flattened, within the spider's body, but assume the globular form after being laid. The female spider, in preparing a nest for her eggs, uses her own body as a bird uses its body to give form and proper size to its nest. The eggs excluded from a cavity just behind the breast. The hatching of the eggs of one species (the *epieira diadema*) has been traced

with care, and the successive evolution of the embryo depicted with skill, by M. Herold, of Marburg. The systematic classification of arachnida can hardly be deemed perfect in its present form, but that of Latreille being deemed the best, is generally adopted. He arranges the arachnida into two great orders—*pulmonaria* and *trachearia*. He subdivides the first order, *arachnida pulmonaria*, into 2 families, under the names of *araneida* and *pedipalpi*. The *araneida* include our common spiders, having palpi simple, pediform; mandibles, armed with a movable and perforated claw, emitting a poisonous liquid; abdomen, inarticulate, terminating by spinnerets. The *pedipalpi*, including the scorpions and their allies, have the abdomen articulate, without spinnerets; palpi produced, cheliform (*chela*, claw), or shaped like pincers; mandibles, with a movable digit. The second order, *trachearia*, has been variously subdivided by different naturalists. It includes various forms of shepherd-spiders and sea-spiders, mites, and ticks; true mites, garden-mites, spider-mites, wood-mites; true ticks, plant-ticks, water-ticks, harvest-ticks; false scorpions, book-scorpions; shepherd-spiders, sea-spiders, and parasitic sea-spiders.

ARAQUAHÍ, a small river of Brazil, in the province of Minas Geraes, which has its source in the Sierra das Esmeraldas, about lat. 17° 30' S. long. 49° W., and running N. E. falls into the Jequitinhonha. It is about 200 miles in length, and sufficiently deep to be rendered easily navigable for at least 100 miles.

ARAD, OLO, a town and bishop's see, capital of the district of Arad, Hungary. It has a considerable amount of trade in cattle, and a fair second only to the fairs of Pesth and Debreczin. Pop. 16,400.—NEW ARAD is celebrated for its fortress, which is used as a state's prison for Austrian political offenders.

ARAFAT, or ORPHAT (gratitude), a mountain in Arabia near Mecca, a pilgrimage to which is enjoined upon all who visit that city. This mountain is a granitic hill only about 200 feet high above the plain. On the visit of Burckhardt (1814) during the time of an annual pilgrimage, he counted nearly 3,000 tents, while at the same time he estimated that the majority of the visitors were without tents. Among the motley crowd he ascertained that at least 40 languages were spoken. The area of the mountain is not large enough to hold the pilgrims. The pilgrimage occupies 3 days from Mecca. On the second day, the ceremony of the sermon on the mount is observed. The cadi of Mecca usually preaches the sermon, riding first upon a camel up the entire length of the stone steps which ascend the mountain, to the summit. Hearing this sermon is the great point of the pilgrimage, and confers the name of hadji (pilgrim). There is a tradition among the Mohammedans that on this mountain Adam first met Eve again, after a separation of 120 years immediately following the expulsion from Paradise. On the summit is a chapel, which, ac-

self. It was rified in 1807 by the Wahabees.

ARAGO, DOMINIQUE FRANÇOIS JEAN, a celebrated French physicist and statesman, late director of the observatory at Paris, born Feb. 26, 1786, in the village of Estagel, near Perpignan, died in Paris Oct. 2, 1858. He displayed from his earliest childhood those remarkable powers of mind which subsequently won for him the highest rank among the scientific men of the century. After having studied mathematics at home, and at the college of Perpignan, he entered, in 1803, the polytechnic school. On leaving it, in 1805, he was appointed secretary of the board of longitude, and in 1806 he was charged with finishing, in conjunction with Biot, the measurement of the arc of the meridian, begun by Delambre and Méchain, as the basis of the decimal metrical system of France. Three years were thus spent, not without risk of his life, and not without frequent loss of liberty, from the excited political state of affairs on the borders of France and Spain. In 1809, on his return to Paris, he was elected member of the French institute, and soon after appointed professor at the polytechnic school. In 1830 he became perpetual secretary of the academy of sciences, and director of the observatory, a post which he retained to the last. Although thus directly concerned in astronomy, his active mind embraced the circle of physical sciences, and he rendered special services to optics, by his own experiments, and by his influence over others, and especially by directing the labors of Fresnel and Malus. He was the first to recognize the value of Young's optical papers. He also investigated magnetical phenomena, and made some contributions to meteorology, especially in connection with electricity. The colors of polarized light, the application of polarization as a test of the origin of light, the experimental proof of the retardation of light in dense mediums, the apparent magnetism of copper rotating near a permanent magnet, the influence of the aurora upon the needle, are among the points on which Arago's labors were crowned with the most brilliant success. The last three years of his life, he was unable, through blindness, and other sufferings, to devote to scientific study. He was the author of more than 60 distinct memoirs on various branches of science. He established, in concert with M. Gay-Lussac, in 1816, the *Annales de physique et de chimie*. In 1828 the *Annuaire du bureau des longitudes*, and *Les comptes rendus hebdomadaires* were, on his urgent recommendation, commenced by the academy in 1835. His celebrated essay on *Le phénomène des anneaux colorés* appeared in the *Mémoires d'Arcueil*, which also had Humboldt, Laplace, Berthollet, Chaptal, and other eminent men, as contributors. The famous article in the "Edinburgh Encyclopedia," on the polarization of light, is from the pen of Arago. As secretary of the academy, he pronounced historical eulogies on his predecessor Fourier,

père, &c., which are considered as models of the kind. His complete works are now in course of publication at Paris, under the direction of Barral, and a German translation by Hankel is announced at Leipsic, as well as an English translation at London. From the royal society of London he received the Copley medal, an honor never before conferred upon a French man of science. When Napoleon, after the battle of Waterloo, thought of emigrating to the United States, for the purpose of devoting the remainder of his life to scientific pursuits, he invited Arago to accompany him, and when this intention was foiled by England, Monge endeavored in vain to prevail upon Arago to follow the ex-emperor to St. Helena. On the outbreak of the revolution of 1830, we find Arago espousing the cause of the people. In 1831 he was elected member of the chamber of deputies by his native department of Pyrénées-Orientales. Here he took his seat on the extreme left, on the side of Lafitte and Dupont de l'Eure, and soon became a prominent leader of the opposition. He delivered many memorable speeches in behalf of science and education, and in the political questions of the day he strenuously opposed all encroachments upon the rights of the people, and denounced, as such, the government monopoly of railways, and the project of the fortifications of Paris. In addition to his parliamentary functions, he was a member of the council-general of the Seine, of which he was president until 1849. The declaration of the council in favor of the emancipation of slaves, was exclusively due to Arago's instrumentality. He took a conspicuous part in the movement which led to the overthrow of Louis Philippe, and on Feb. 24, 1848, he became a member of the provisional government, and officiated first as minister of marine, and afterward presided at the same time over the war department. He belonged to the republican wing of Marrast and Marie, who opposed the theories of the socialists, and advocated liberal institutions, as they exist in the United States. The department of the Pyrénées-Orientales chose him as representative to the national assembly. When the provisional government relinquished the reins of power, the assembly appointed him member of the executive commission. In this position he displayed great personal courage during the bloody days of June, 1848. He opposed the election of Louis Napoleon to the presidency, and, discontented with the turn which politics were then taking in France, he gradually ceased to take part in public affairs. But he proved true, to the last, to his republican creed, and refused to take the oath to the government of Louis Napoleon. In May, 1852, he addressed a letter on this subject to the minister of public instruction, which was favorably received, the government exonerating him from the oath of allegiance, without depriving him of his office as director of the observatory. His death was deplored as a ca-

larity by lovers of science all over the world. He left the reputation of a generous relative and friend, an eloquent teacher, an indefatigable worker in the realms of science, and a brave soldier in the army of humanity. He possessed in a high degree the warmth of feeling which is the special attribute of the children of the south, while at the same time he was remarkable for a peculiar tenacity of intellect. His lectures on science always attracted crowds of eager listeners. In addition to the vast stores of knowledge which he unfolded before the audience, there was an irresistible magnetism in his presence and utterance. II. EMMANUEL, son of the preceding, born at Paris, Aug. 6, 1812. He is an *avocat*, and was elected member of the council of advocates. His name as well as his opinions and tendencies caused him to be retained in several political cases of importance. In 1839 he defended Barbès and Martin Bernard. He took an active part in the revolution of 1848, and, on the morning of Feb. 24, protested from the balcony of the *National* against the abdication of Louis Philippe, declared the monarchy extinct, and called for a provisional government. He was at once appointed by his republican friends to oppose the proclamation of the regency, and ran to the *palais royal* with Barras, jun., Chaix, and Duméril. They arrived at the door of the chamber in time to see the duchess of Orleans and her son enter. When M. Dupin had read from the tribune the abdication which announced the regency, Emmanuel Arago rose and loudly proclaimed that royalty was by this act extinct, and that the people objected to a regency. Lamartine and other deputies followed, and a provisional government was organized on the spot, the duchess of Orleans and the royal dukes making their way out in the tumult of debate. In a few days it was announced in Paris that Lyons was in a most excited state owing to the stoppage of trade and the destitution of the workmen, and Arago was instantly despatched by the provisional government as commissary general, with plenary powers to act according to his discretion. Finding that (the question being one of food) the danger was imminent, Arago consulted with the mayor of Lyons, the receiver general, and the inspector general of finances, and gave an order on the receiver general for a sum of 500,000 francs, to be immediately applied in relief of the distress. This action was subsequently misrepresented and made the subject of furious party invective. He was elected a member of the legislative assembly for the Pyrénées-Orientales, and was despatched to Berlin as envoy extraordinary. He resigned on the election of Louis Napoleon as president, and, returning to Paris, has continued in steady opposition to Louis Napoleon's government. III. ETIENNE, brother of Dominique, born at Perpignan, Feb. 7, 1808, a dramatic author. He studied at Loreze, and undertook a course of chemistry at the polytechnic school, which he abruptly quitted for the purpose

of joining the secret societies. He then threw himself into a literary career, and in 1834 he put forth a melodrama and a comic vaudeville, whose success was complete. He established two satirical journals, *La Lorgnette* and *Figaro*. He was afterward director of the Vaudeville until it was burned down. He has written no less than 120 theatrical pieces. His most pretentious, though perhaps not most successful piece, is *Les Aristocrates*, a five act comedy, produced at the *Théâtre Français*. In 1830 he closed his theatre to join in the popular movement, and distributed the theatrical stock of arms to the people during the 8 days. His zeal was only inflamed, not extinguished, by the share he had in the revolution of 1830, and he was among the most prominent to signalize his disapproval of the shortcomings of the Louis Philippe government; which marked its sense of his hostility by cancelling his theatrical license in 1840. The *Reforme*, a daily democratic journal, was founded by Etienne Arago. He was of course one of the prime movers in the revolution of 1848, and was placed in the direction of the post office, an appointment which he filled with integrity. In 1849 he was concerned in the revolutionary movement of June, which was put down by Gen. Changarnier. In consequence of this he went into exile. IV. JACQUES ETIENNE VICTOR, a brother of Dominique, born March, 1790, at Estagel, died in Paris, Jan. 1855. At an early age he devoted himself to literature. When only 20 years of age, he made an artist's tour through various countries of the Mediterranean. In 1817 he went a voyage in the exploring vessel *Uranie* as draughtsman to the expedition. The *Uranie* was wrecked at the Moluccas, and M. Arago experienced his full share of trouble and privation, and did not return to France until 1821. After his return to France, he resided at Bordeaux and Toulouse. He continued a life of literary activity even after the total loss of his sight, which happened in 1837. He wrote several theatrical pieces, and an account of the voyage of the *Uranie*. His most interesting work from the circumstances under which it was written, is *Souvenirs d'un aveugle: Voyage autour du monde*. V. JEAN, a brother of Dominique, born 1788, died July 9, 1836. He was a sub-treasurer in Perpignan, and, having been deprived of his appointment on a denunciation which subsequently turned out to be false, he embarked for New Orleans, and, joining Mina, became a general in the Mexican service in the war of independence, where he rendered eminent services, and won a high military reputation.

ARAGON, once a kingdom, now a royal province in the north of Spain. Its extent is about 16,000 sq. miles; pop. in 1849, 847,105. It is bounded on the N. by the Pyrenees, on the E. by Catalonia, and on the W. by Navarre. The surface is irregular from the numerous spurs of the Pyrenees that cross it, beside which it is separated from the neigh-

convert it almost into a basin. The Pyrenean chain in Aragon reaches a great altitude, its peaks exceeding 11,000 feet in height. The province is watered by numerous affluents of the Ebro, the Huecha, Jalon, Huerva, Aguas, Martin, Guadalupe, and Matarrana, the Gallego, Cinca, Xiloca, Alomacid, and Turia. There is a canal in the province, which was commenced in 1520 by Charles V., and which, had it been completed according to the original design, would be a noble work; but it was for a long time in abeyance, and has stopped short of its object, which was to reach the sea at Tortosa, and furnish a maritime outlet for the province. It extends from Tudela to near Sastago and Tauste. Its average width is 69 feet, its depth 9 feet. It is mostly lined by high, thick walls, and crosses the Jalon river by an aqueduct 4,800 feet in length. The productions of Aragon are grain, flax, and hemp, of good quality, wine, and various dye stuffs. The mineral productions are iron, quicksilver, lead, copper, cobalt, marble, and coal. The mines and quarries are indifferently worked, the chief being one of rock salt near Remolino. Cattle are not very plentiful, but sheep are bred in considerable numbers. The mountains and forests abound in game. Aragon is divided into three provinces, Huesca, Saragossa, and Teruel. The principal city is the famous Saragossa. The history of Aragon forms an important part of the history of Spain. Intersected by the direct military road connecting Spain with France, it has been affected by all the changes of government through which the whole country has passed. It has been under the sway of the Roman, Carthaginian, Goth, and Arab. The Aragonese were not, however, worsted in their contests with the Moors. In the inaccessible fastnesses of the Pyrenees, a remnant of patriots took refuge and maintained their independence. Issuing thence, they recovered some part of the Christian territory, and erected a kingdom. And it is not a little singular that a nation which, in the history of the 16th, 17th, and 18th centuries, was a model despotism, should, in earlier ages, under every circumstance of discouragement, have held so firmly to their freedom, and imposed so many checks on the exercise of arbitrary sway by their sovereigns. The Aragonese had probably the earliest representative system of Europe. They elected Garcia Iniguez as their sovereign and leader, but compelled him to an oath to maintain their *fueros*, or constitutional charter; to give to his subjects half the territory he should take from the enemy; not to enact laws without their consent; nor to declare war or to make peace without the consent of his counsellors. The *fueros* provided a cortes, in which all classes of the state were represented, and also enunciated principles of self-government and popular rights, not exceeded by the liberalism of the present day. To insure the sovereign's adherence to this compact, a *justicia* was appointed as guardian

and cortes together; his decisions were without appeal, and he was only answerable to the nation at large. He was allowed 2 deputies to assist him in his high office, who might be appointed by the king for 8 years, and were to be taken from the caballeros, the class between nobles and commoners. The cortes were composed of the nobility, the caballeros, the commons, to whom, in 1801, the ecclesiastics were added. Unanimous consent of the orders was requisite to a law, and any one of the four had a right of peremptory veto. The king's assent was also requisite. There were 8 nobles in the cortes, 28 ecclesiastics, and 31 members for cities and boroughs. The number of representatives seems to have varied occasionally. The cortes were summoned and dismissed by the king, who presided at their deliberations in person, unless unable to do so, in which case the crown prince or his lieutenant was present. He could not remain in the cortes at the taking of the votes on a measure. The king opened the assembly by a speech, which was replied to by the cortes; and after this preliminary matter was disposed of, committees of the several orders were appointed to prepare the measures to be considered in the assembly. The *justicia* had a seat in the house below the throne, and every Aragonese, of what rank soever, had the free and indefeasible right to lay before the cortes any *greuges* (grudges or grievances) in relation to a breach of the *fueros* of the kingdom. The cortes appointed a committee to report on the grievance, which might be either an act of omission or of commission.—After all petitions and grievances had been disposed of, but not before, the cortes voted the supplies for the service of the state. These supplies were of a limited character. In 1876 the first money grant was asked by Pedro IV. to levy a body of men-at-arms. The Aragonese cortes refused, being "accustomed," as they said, "to serve the king with their persons, not their purses." Subsequently, the same king, however, coaxed his subjects into a loan. In 1412, Ferdinand I. obtained another loan, which loans paved the way to royal aids, benevolences, and other exactions. The royal demesnes were the sources to which the king originally looked for funds to carry on his wars—the nobility and men-at-arms attending him at their own cost. This also was English usage. The ordinary expenses of the state were defrayed by taxes levied for terms specified, after which their collection was illegal. On the dissolution of the cortes, officers called a *diputacion*, and associated with the *justicia*, were appointed by the cortes to watch over the public interests until they met again. The Aragonese had an ancient constitutional right of recurring to arms as a defence against the refusal of their king to observe and protect their *fueros*. This was not a mere inherent right, but a distinctly recognized provision; and the Aragonese, in the forms of their coronation, reminded the sover-

eigns of it. The king having taken the oath to uphold the constitution, protect the *fueros*, and do justice, the *justicia* who administered it, replied in the name of the people, "We, who are worth as much as you, take you for our king and lord, provided you keep our laws and liberties, otherwise *not*." In the reign of the gloomy tyrant Philip II., the *justicia*, Juan de Samoza, having summoned the people to arms to protect their *fueros*, the king sent a force against him, and wrote an autograph letter to his general, directing him to take and punish the *justicia* without delay; an order which was strictly obeyed, for, being deserted by the nobility of Aragon, the patriotic judge was seized and beheaded without form of trial. Aragonese liberty had tottered ever since the union of the crowns of Aragon and Castile, by the marriage of Ferdinand and Isabella. This increased the power of the monarchy; and the accession of Charles V. was the death-blow to the liberty and cherished privileges of the Spanish cities and provinces.

ARAGON. I. ALFONSO DE, a Spanish Jesuit, born in 1585, died in 1629; distinguished himself as missionary in Paraguay, and as author of various works on grammatical subjects. II. FERNANDO DE, archbishop of Saragossa, grandson of Ferdinand, king of Castile and Aragon, author of a history of the kings of Aragon, and of other historical works; was born at the beginning of the 16th century, and died in 1575. III. GIOVANNA DE, an accomplished Roman lady, princess of Tagliacozzo, and wife of Ascano Colonna, distinguished by her beauty and talents; died in 1577. She took an active diplomatic part in the differences between the house of Colonna and Pope Paul IV., and her superior management of these affairs gave so much offence to the pope, that he would not permit her to marry her daughters without his permission. IV. TULLIA, a Neapolitan poetess

and bella, born in 1510, died in 1565. She was the reputed daughter of the archbishop of Palermo, Tagliavia, who gave her an excellent education, and the means of living in pecuniary independence. She was distinguished for her beauty and social qualities quite as much, if not more, than for her literary abilities, which, however, were highly respectable, as she was a fine Latin and Italian scholar. She had many admirers in Neapolitan society, including the cardinal Hippolytus de' Medici. Her poetical works fill 8 volumes.

ARAGONA, a small town of Sicily, $7\frac{1}{2}$ miles N. N. E. of Girgenti; pop. 6,580. It has a castle, fine paintings, and antiquities. It is near the clay volcano of Maccaluba.

ARAGUARI, a river of Brazil, in Brazilian Guiana, rises in the Sierra de Tumcaraque, in lat. 8° N. and long. $52^{\circ} 82'$ W., flows east, and, after a course of about 160 miles, falls into the Atlantic a little north of the mouth of the Amazon.

ARAGUAY, or ARAGUAYA, a large river of Brazil, which rises in the mountains, in lat. $16^{\circ} 10'$ S. and long. $51^{\circ} 80'$ W. near the Parana. It flows northward, between the provinces of Matto-Grosso and Goyaz, to São João, lat. $6^{\circ} 5'$ S., where it unites with the Tocantins, and the combined stream discharges its waters, after a course of nearly 400 miles further, into the southern estuary of the Amazon, in lat. $1^{\circ} 40'$ S. Its whole course is about 1,300 miles, of which about 1,100 are navigable. About midway of its course, it separates into 2 arms, which enclose the island of Santa Anna, 210 miles long and 40 broad. Its principal tributary is the Das Mortes, which joins it in lat. 13° S. Many tribes of warlike savages are found on the banks of the Araguay. Its great navigable length furnishes an uninterrupted navigation from Para, almost to the head-waters of the Parana.

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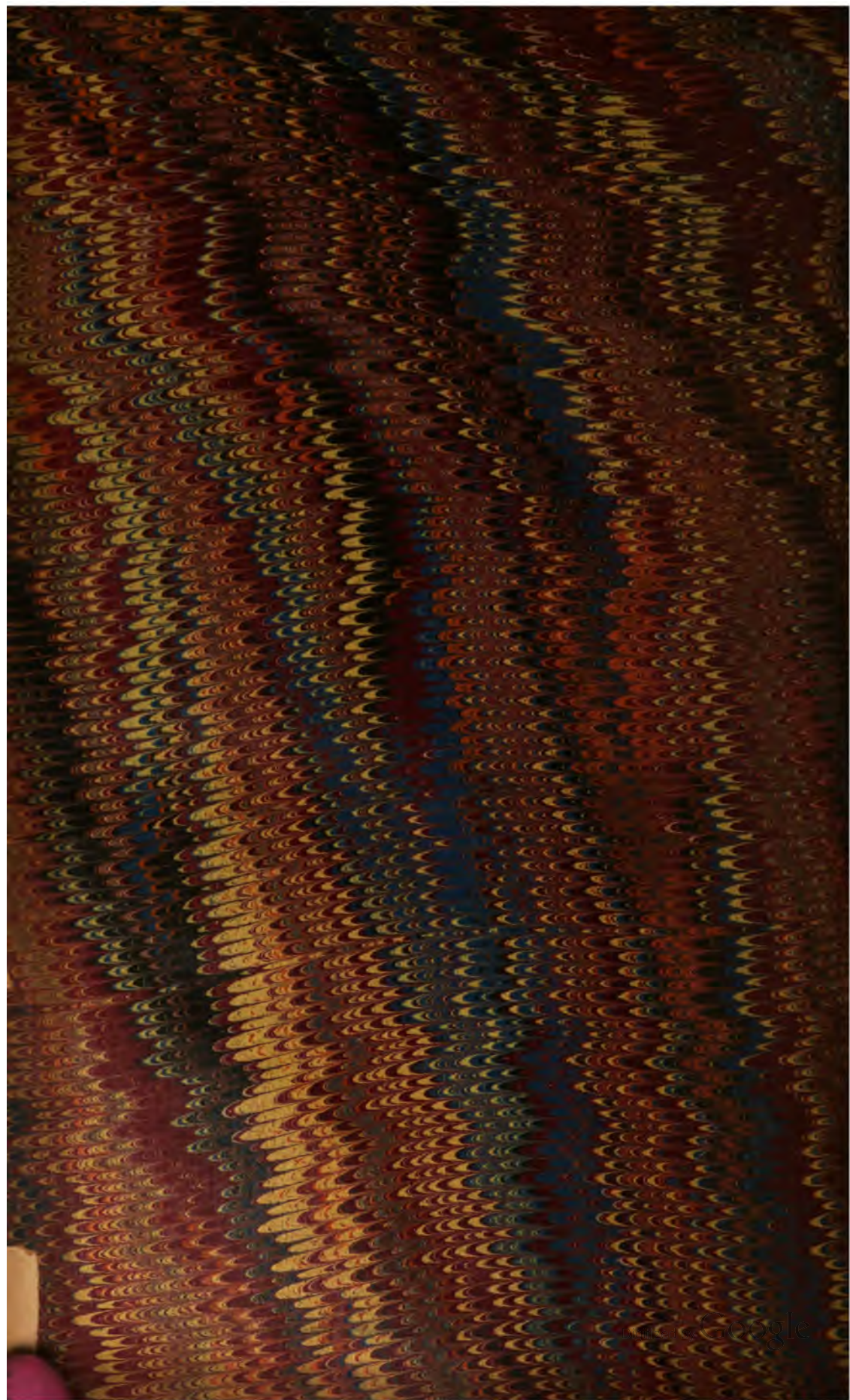
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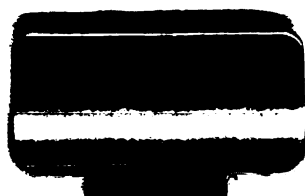
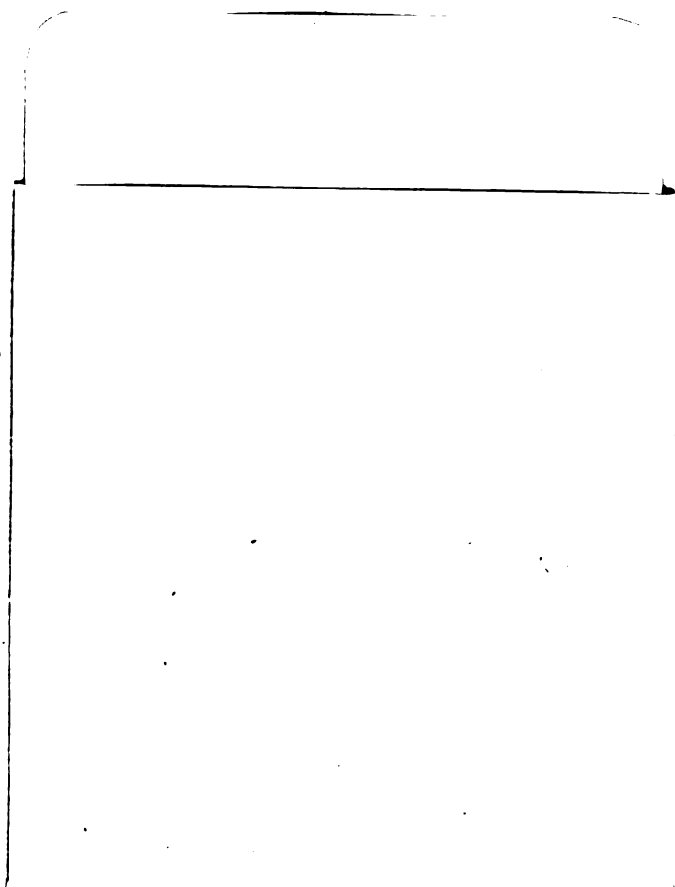
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